ORDER NO. HAD8802028C9

Service Manual

Amplifier

SU-V90D

Digital Integrated Amplifier

05230464 91004988 43
SM-SUV90D 1 ST
SVC MNL

Color

(K) ....Black Type

Color	Areas
(K)	[E]............Continental Europe.
(K)	[EH] ....Holland.
(K)	[EB]...........Belgium.
(K)	[EF]...........France.
(K)	[EK] ....United Kingdom.
(K)	[EG] ...........F.R.Germany.
(K)	[Ei]............Italy.
(K)	[XL]............Australia.
(K)	[XA] ....Asia,Latin America, Middle Near East, Africa & Oceania.
(K)	[PA]............East PX.
(K)	[PE]............European Military.

SPECIFICATIONS (DIN 45 500)

■ MAIN AMP. SECTION

20 Hz~20 kHz continuous power output	
both channels driven	2 × 100W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 150W (4Ω) 2 × 115W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.002% (8Ω)
rated power at 1 kHz	0.0007% (8Ω)
half power at 20 Hz~20 kHz	0.002% (8Ω)
half power at 1 kHz	0.0007% (8Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz=4:1, 8Ω	0.005%
rated power at 50 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.005%
Power bandwidth	
both channels driven, −3 dB	5 Hz~60 kHz (8Ω, 0.025%)
Residual hum and noise	0.8 mV
Damping factor	30 (4Ω), 60 (8Ω)
Headphones output level and impedance	700 mV/330Ω
Load impedance	
MAIN or REMOTE	4Ω~16Ω
MAIN and REMOTE	8Ω~16Ω

■ PRE AMP. SECTION

Input sensitivity and impedance	
PHONO MM	2.5 mV/47kΩ
MC	170 μV/220Ω
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	150 mV/18kΩ
POWER AMP DIRECT	1 V/47kΩ
PHONO maximum input voltage (1 kHz, RMS)	
MM	160 mV
MC	12 mV
S/N	
rated power (4Ω)	
PHONO MM	79 dB (88 dB, IHF, A)
MC	70 dB (72 dB, 250 μV, IHF, A)
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	100 dB (IHF, A: 106 dB)
POWER AMP DIRECT	106 dB (IHF, A: 115 dB)
−26 dB power (4Ω)	
PHONO MM	79 dB
MC	68 dB
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	86 dB
50 mW power (4Ω)	
PHONO MM	76 dB
MC	69 dB
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	80 dB
Frequency response	
PHONO	RIAA standard curve ±0.2 dB (20 Hz~20 kHz)
TUNER, CD, AUX, TAPE 1, TAPE 2/DAT	0.8 Hz~150 kHz (−3 dB) +0, −0.1 dB (20 Hz~20 kHz)
POWER AMP DIRECT	0.8 Hz~150 kHz (−3 dB)
Tone controls	
BASS	50 Hz, +10 dB~−10 dB
TREBLE	20 kHz, +10 dB~−10 dB
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Muting	−20 dB
Output voltage and impedance	
TAPE1, 2/DAT REC OUT	150 mV
Channel balance, AUX 250 Hz~6,300 Hz	±1 dB
Channel separation, AUX 1 kHz	55 dB

■ DIGITAL SECTION

Harmonic distortion	0.002%
Total harmonic distortion	0.003%
S/N	110 dB
Dynamic range	99 dB
Frequency response	2 Hz~20 kHz, +0.3 dB, −0.3 dB

■ GENERAL

Power consumption	765W
Power supply	
For continental Europe	AC 50 Hz/60 Hz, 220V
For United Kingdom, Australia and others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 158 × 397 mm (16-15/16" × 6-7/32" × 15-5/8")
Weight	13.2 kg (29.04 lb.)

Notes:

1. Specifications are subject to change without notice.
   Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Technics

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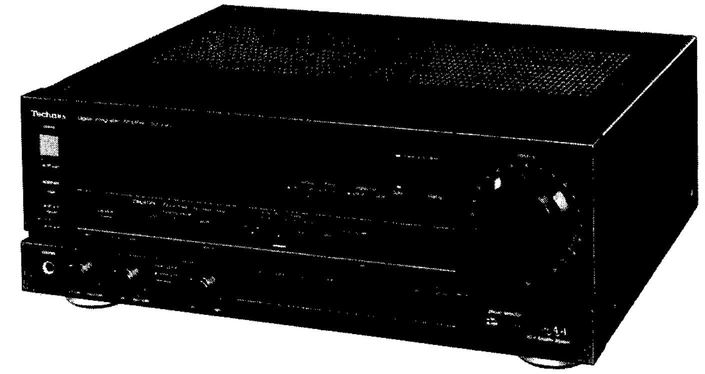

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Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Muting	−20 dB
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TAPE1, 2/DAT REC OUT	150 mV
Channel balance, AUX 250 Hz~6,300 Hz	±1 dB
Channel separation, AUX 1 kHz	55 dB

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■ BEFORE REPAIR AND ADJUSTMENT

(1) Turn off the power supply. Using a 10Ω, 10W resistor, shortcircuit both ends of power supply capacitors (C609,C610)in order to discharge the voltage.

(2) Before turning on the power switch of the unit.

A. Connect the voltage controller to the primary side.

B. Connect the AC ampere meter to the primary side or connect the DC voltage meter to the "±B" circuit of the secondary side.

C. Turn the VR of ICQ(VR401,VR402,VR551 and VR552)to minimum(counterclockwise).

D. After setting the output to zero of the voltage contoller,turn on the power switch of the unit. And increase the output of voltage controller gradually. Then, check carefully whether the current value of primary side become more than following value or whether the DC voltage of secondary side is increasing slowly.

E. If the value of current is increasing unusually or the DC voltage is not increasing,lower the output level of voltage contoller immediately.

- The current value of the primary side at no signal. (Confirm the power supply voltage of each area and provided voltage of the unit.)

Power supply voltage	AC110V	AC127V	AC220V	AC240V
Consumed current 50/60Hz	270 ~ 730mA	240 ~ 630mA	130 ~ 370mA	120 ~ 330mA

■ PROTECTION CIRCUITRY

The protection circuitry of the amplifier may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted" , or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

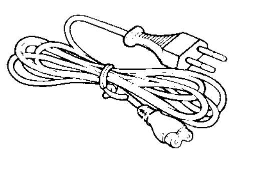
If this occurs, follow the procedure outlined below:
1.Turn off the power.
2.Determine the cause of the problem and correct it.
3.Turn on the power once again.

Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ ACCESSORY

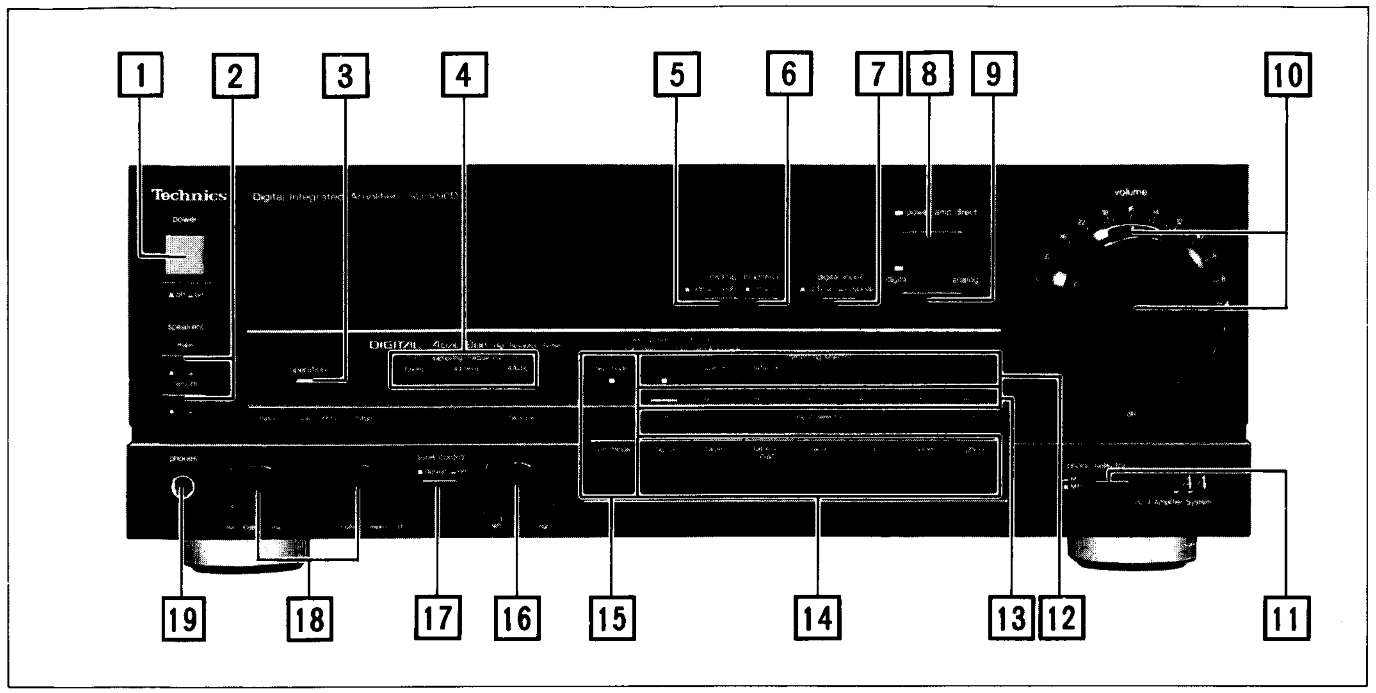
- AC power supply cord 1

For United Kingdom and some areas, the power cord is directly attached to the unit.
Configuration of AC power supply cord differs according to area.



SFDAC05E03	[E, EF, EI, EB, EH, EG]
QFC1205M	[EK]
SJA190	[XL]
SJA111	[XA]
RJA52YA	[PA, PE]

■ LOCATION OF CONTROLS


1
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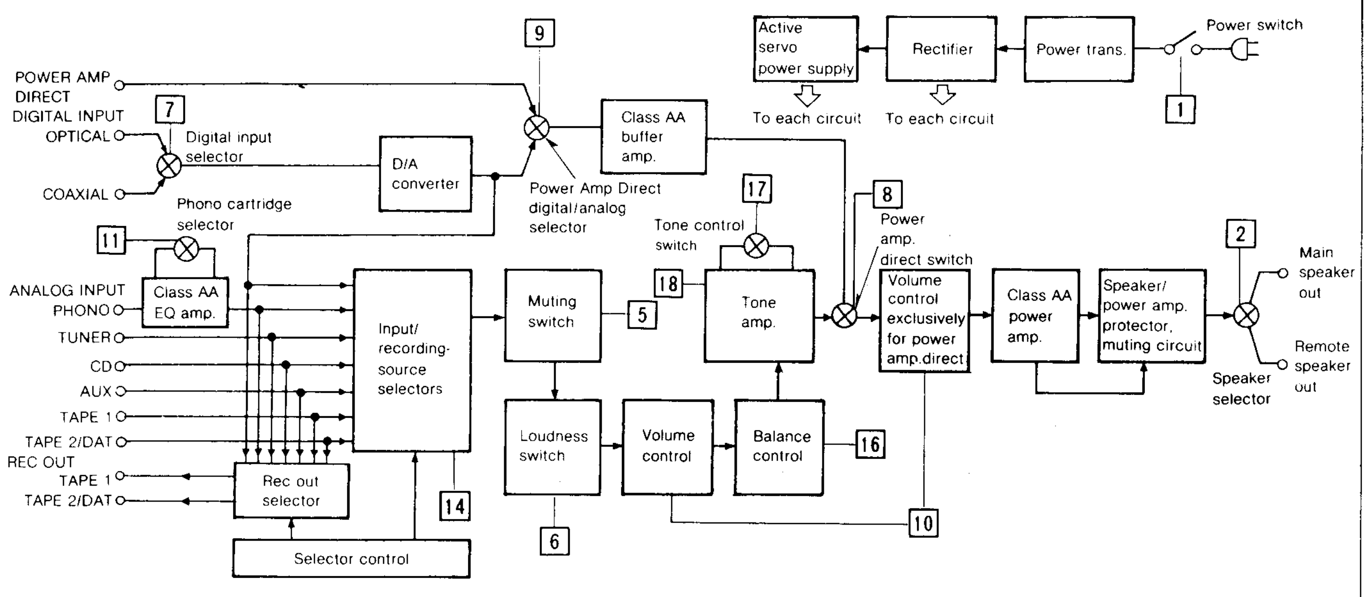
Block diagram


9
POWER AMP DIRECT
DIGITAL INPUT
OPTICAL
COAXIAL
7
Digital input selector
D/A converter
Phono cartridge selector
11
Class AA EQ amp.
ANALOG INPUT
PHONO
TUNER
CD
AUX
TAPE 1
TAPE 2/DAT
REC OUT
TAPE 1
TAPE 2/DAT
Rec out selector
Selector control
Input/ recording-source selectors
14
Class AA buffer amp.
Power Amp Direct digital/analog selector
Muting switch
5
Loudness switch
6
Volume control
Balance control
16
Tone control switch
17
18
Tone amp.
Active servo power supply
Rectifier
Power trans.
Power switch
1
To each circuit
To each circuit
8
Power amp. direct switch
Volume control exclusively for power amp.direct
10
Class AA power amp.
Speaker/ power amp. protector, muting circuit
2
Main speaker out
Remote speaker out
Speaker selector

1 Power switch (power)

2 Speaker selectors (speakers)

These selectors are used to turn the speaker systems on and off.

3 Operation indicator (operation)

This indicator illuminates approximately 5 seconds after the power is switched ON, indicating that this unit is in the operational condition. If there is any abnormal condition of the output signals to the speaker systems (such as, for example, a short-circuit of the speaker connection wires, etc.), this abnormal condition will be detected, the protection circuitry will function, and this indicator will stop illumination.

4 Sampling frequency indicators (sampling frequency)

These indicators function to illuminate to indicate the detection of the sampling frequency of the digital signals input to the "DIGITAL INPUT" terminals on the rear panel of this unit. (Illumination occurs when digital signals are received, even a digital component is not in the play mode.)

32 kHz: For digital signals with the sampling frequency of 32 kHz mode

44.1 kHz: CD and others

48 kHz: For digital signals with the sampling frequency of 48 kHz mode

5 Audio muting switch (muting)

Set to the "–20 dB" position when a disc is being changed or to temporarily reduce the volume level (approx. 1/10).

6 Loudness switch (loudness)

Set to the "on" position when listening to music at low volume. Auditory perception of sound in the low frequency range falls off at low volume, but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

7 Digital input selector (digital input)

This selector is used when a component connected to one of the "DIGITAL INPUT" terminals (on the rear panel of this unit) is to be used as the sound source.

8 Power amplifier direct switch/indicator (power amp direct)

When this switch is switched ON (Indicator will illuminate.), a superior level of tone quality can be obtained, because the signals from the component connected to the "POWER AMP DIRECT" terminals or the "DIGITAL INPUT" terminals are sent directly to the sound volume, without passing through the tone control circuit, etc. of this unit.

9 Digital/analog selector/indicators (digital/analog)

This selector is used (when the power amp direct is ON) to select, as the signal source, either the component connected to the "DIGITAL INPUT" terminals or the component connected to the "POWER AMP DIRECT" terminals.
One of the indicators will indicate which source is selected.

10 Volume control/indicator (volume)

There are two types of volume scale indications: one for when the power amp direct is OFF, and one for when it is ON (Indicator will illuminate.).

11 Phono cartridge selector (phono selector)

This selector should be set to the position which corresponds to the type of cartridge used on the turntable.

MM (▂ – █): Set to this position when using a moving-magnet type cartridge or high-output moving-coil cartridge (1 mV or more).

MC (█ – ▂): Set to this position when using a moving-coil type cartridge.

12 Recording output signal indicators (recording selector)

These indicators indicate the sound source which can be recorded.

13 Input signal indicators (input selector)

These indicators indicate the sound source of the sound being heard from the speakers.

14 Input/recording-source selectors

Press to select the sound source to be listened to and/or the sound source to be recorded.
Note that the function of these selectors changes depending upon the setting of the recording-mode selector.
(Refer to "Recording-mode selector/indicator".)

15 Recording-mode selector/indicator (rec mode)

This selector is used to select the signal to be recorded by the connected tape deck.
When this selector is pressed, the indicator flashes ON and OFF repeatedly; when one of the input/recording-source selector is then pressed, this indicator changes from flashing to a steady illumination.
If this selector is pressed while one of the recording output signal indicators is illuminated, the recording-mode indicator will change from a steady illumination to repeated flashing; when it is pressed once again, the indicator will be extinguished.

When the recording-mode indicator is not illuminated:
If one of the input/recording-source selectors is pressed, the sound source to be listened to and the recording sound source will both be switched at the same time.

When the recording-mode indicator is flashing:
If one of the input/recording-source selectors is pressed, only the recording sound source will be switched.

When the recording-mode indicator is illuminated:
If one of the input/recording-source selectors is pressed, only the sound source to be listened to will be switched.

16 Balance control (balance)

This control is used to adjust left/right volume balance.

17 Tone control switch (tone control)

Set this switch to the "on" position if you want to adjust the bass or treble tone quality.

18 Tone controls (bass/treble)

The bass control is for the low-frequency sound range, and the treble control is for the high-frequency sound range.

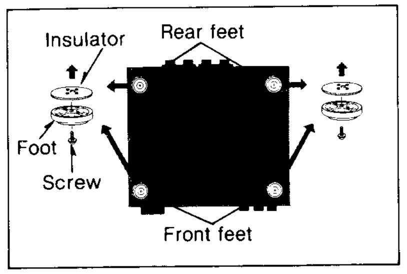
19 Headphones jack (phones)

■ CONNECTIONS

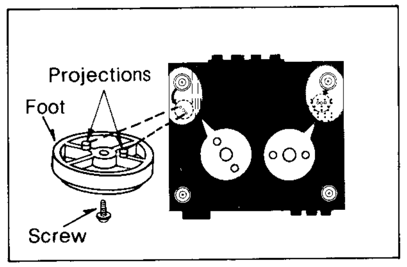
Placement with other equipment

If this unit is to be placed on top of a component that has a lesser depth dimension, be sure to first change the location of the rear "feet" of this unit, as described below.

① Remove the screws from the 4 feet of this unit, and then remove the 4 insulators.


Insulator
Rear feet
Foot
Screw
Front feet

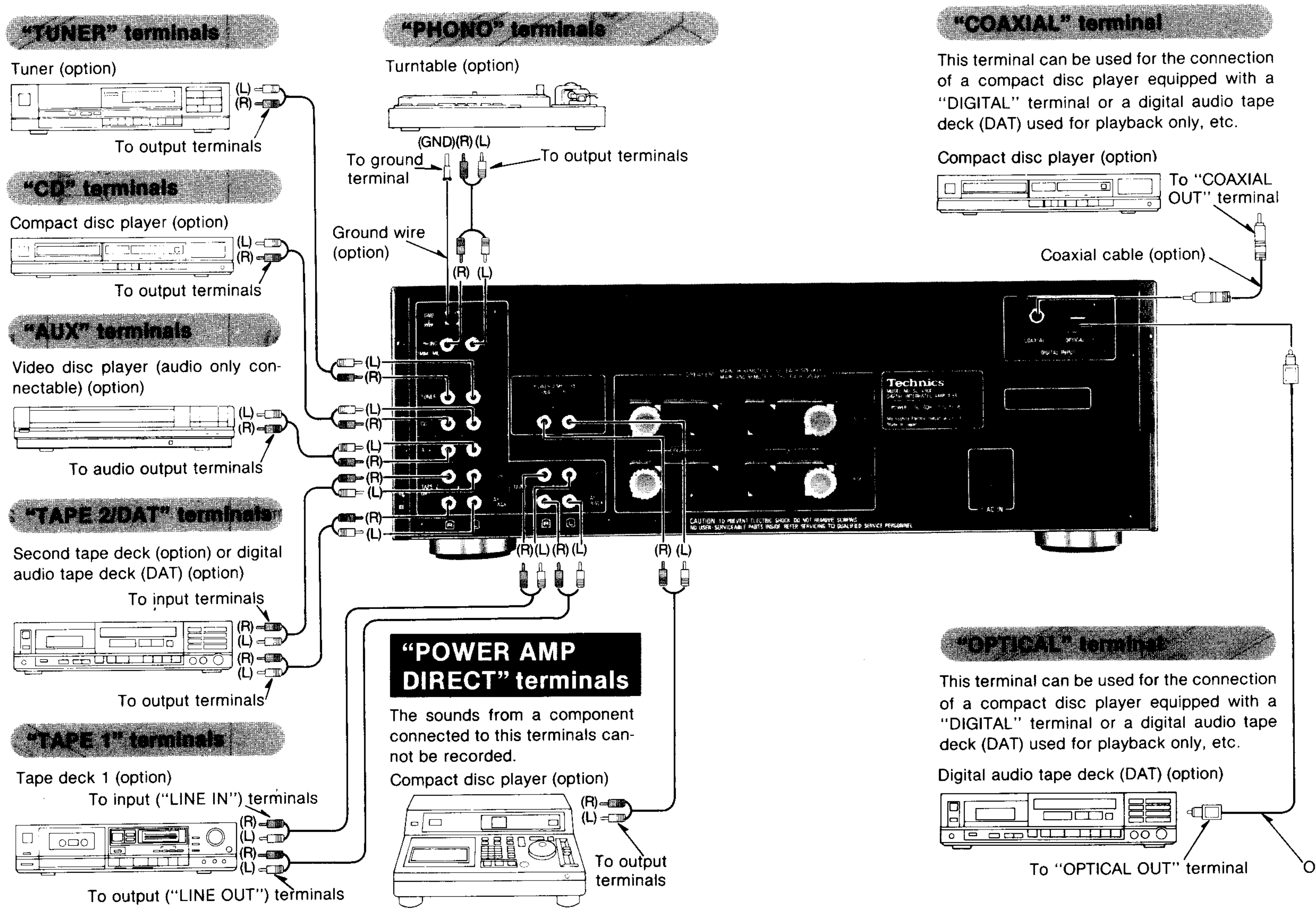
② Re-install the front feet in their former positions, and install the rear feet in the positions shown in the illustration. (Be sure to fit the projections into the holes correctly before tightening the 4 screws).


Projections
Foot
Screw

Note:
If the feet are later re-installed at their original locations, be sure to use the insulators in the way that they were originally installed.

Connections to analog terminals

Make connections to each component in the system by using stereo connection cables (option).


"TUNER" terminals
Tuner (option)
(L)
(R)
To output terminals
"CD" terminals
Compact disc player (option)
(L)
(R)
To output terminals
"AUX" terminals
Video disc player (audio only connectable) (option)
(L)
(R)
To audio output terminals
"TAPE 2/DAT" terminals
Second tape deck (option) or digital audio tape deck (DAT) (option)
To input terminals
(R)
(L)
(R)
(L)
To output terminals
"TAPE 1" terminals
Tape deck 1 (option)
To input ("LINE IN") terminals
(R)
(L)
(R)
(L)
To output ("LINE OUT") terminals
"PHONO" terminals
Turntable (option)
(GND)(R)(L)
To ground terminal
To output terminals
Ground wire (option)
(R) (L)
(L)
(R)
(L)
(R)
(L)
(R)
(R)
(L)
(R)
(L)
Technics
(R)(L)(R)(L)
(R) (L)
Compact disc player (option)
(R)
(L)
To output terminals
Compact disc player (option)
To "COAXIAL OUT" terminal
Coaxial cable (option)
Digital audio tape deck (DAT) (option)
To "OPTICAL OUT" terminal
Optical-fiber cable (option)

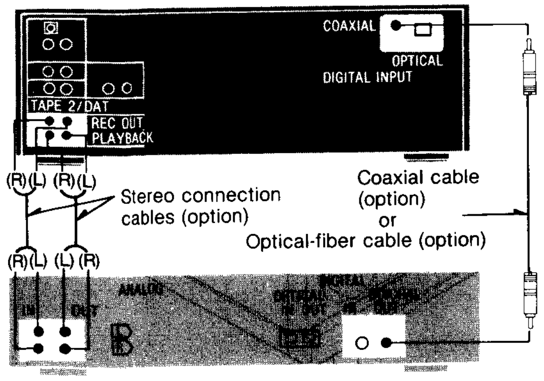
"POWER AMP DIRECT" terminals

The sounds from a component connected to this terminals cannot be recorded.

Compact disc player (option)

About the "DIGITAL INPUT" terminals and digital audio tape deck (DAT) connections

This unit


COAXIAL
OPTICAL
DIGITAL INPUT
TAPE 2/DAT
REC OUT
PLAYBACK
(R)(L) (R)(L)
Stereo connection cables (option)
Coaxial cable (option)
or
Optical-fiber cable (option)
(R)(L) (L)(R)
ANALOG
IN
OUT

Digital audio tape deck (DAT) (option)

- If connections are made to this unit from a "DIGITAL OUT" ("OPTICAL" or "COAXIAL") terminal of the digital audio tape deck and, at the same time, from its "ANALOG" ("LINE IN" and "LINE OUT") terminals, make the connection from the "ANALOG" terminals of the DAT deck to the "TAPE 2/DAT" terminals of this unit.
  If the "ANALOG" terminals of the DAT deck are connected to the "TAPE 1" terminals of this unit, a "loop" may occur of the digital signals and the analog signals.
- Sounds from the component connected to the "DIGITAL INPUT" terminals of this unit can be recorded only by the tape deck connected to the "TAPE 1" terminals.
  (Refer to "Recording" on page 10.)
  For detailed information concerning DAT recording, refer to the operating instructions of the DAT deck.

Note: Careful note should be taken of the following points. If these points are not heeded, a malfunction of the unit's operation could occur.
1. Only analog-type components should be connected to the analog input terminals.
2. Only digital-type components should be connected to the digital input terminals.
3. Optical-fiber cables must absolutely never be bent.

Connections to "DIGITAL INPUT" terminals

"COAXIAL" terminal

This terminal can be used for the connection of a compact disc player equipped with a "DIGITAL" terminal or a digital audio tape deck (DAT) used for playback only, etc.

■ About the "COAXIAL" terminal

This terminal is a 75-ohm coaxial terminal; using a toroidal pulse transformer, it functions to provide electrical oscillation between components, thereby preventing signal deterioration resulting from noise generated within the ground loop, etc.

"OPTICAL" terminal

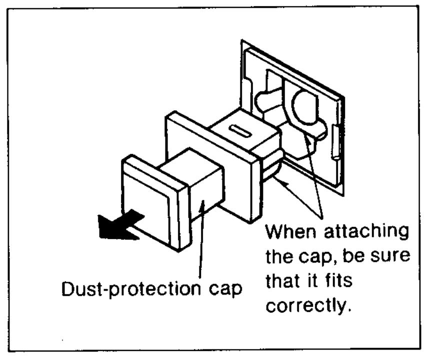
This terminal can be used for the connection of a compact disc player equipped with a "DIGITAL" terminal or a digital audio tape deck (DAT) used for playback only, etc.

■ About the "OPTICAL" terminal

This terminal is an optical-connector terminal; because electric signals are converted to optical signals for transmission, there is no adverse effect upon the signals as a result of externally generated electrical noise, thus making possible the transmission of digital audio signals of extremely high quality.

Use of the "OPTICAL" terminal

A dust-protection cap is used to cover and protect the "OPTICAL" terminal.
Remove this cap only when the "OPTICAL" terminal is to be used.


When attaching the cap, be sure that it fits correctly.
Dust-protection cap

Note:
Be sure to use the dust-protection cap to again cover the "OPTICAL" terminal when it is not being used.
This cover serves to prevent the entry of dust, etc. into the terminal, because such foreign material can cause incorrect operation.

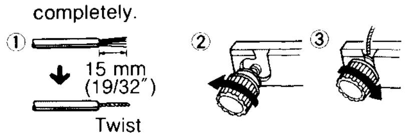
"SPEAKERS" terminals

■ Load impedance:

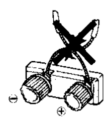
- When only the "MAIN" or only the "REMOTE"terminals are used: 4 – 16 ohms
- When both the "MAIN and the "REMOTE" terminals are used simultaneously: 8 – 16 ohms

■ Connection of speaker wires

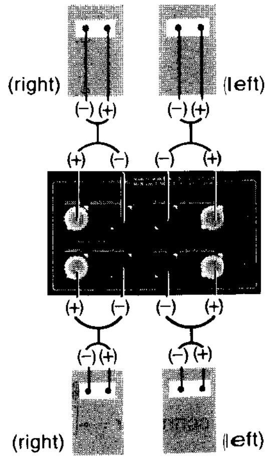
① Strip off the outer covering, and twist the center conductor.
② Turn 5~6 times.
③ Insert wire and tighten screw completely.


①
15 mm (19/32")
Twist
②
③

Notes:
1. To prevent damage to circuitry, never short-circuit plus (+) and minus (–) speaker terminals.
2. Be sure to only connect positive (+) cords to positive (+) terminals, and negative (–) cords to negative (–)terminals.



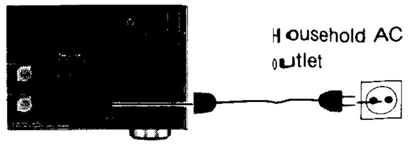
Main speaker systems (option)


(right)
(left)
(–)(+)
(–)(+)
(+)
(–)
(–)
(+)
(+)
(–)
(–)
(+)
(–)(+)
(–)(+)
(right)
(left)

Remote speaker systems (option)

AC power supply cord
(included)

- For United Kingdom and some areas, the power cord is directly attached to the unit.
- Fit a suitable plug to the AC power supply cord.
- Configuration of AC power supply cord differs according to area.

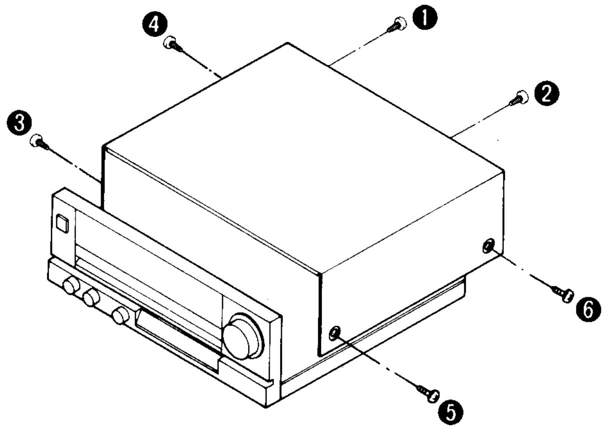

Household AC outlet

■ DISASSEMBLY INSTRUCTIONS

Ref No. 1 — How to remove the cabinet

Procedure
1

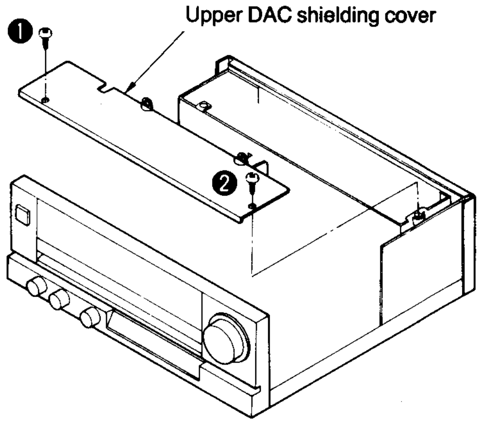
1. Remove the 6 screws (❶~❻) and remove the cabinet.



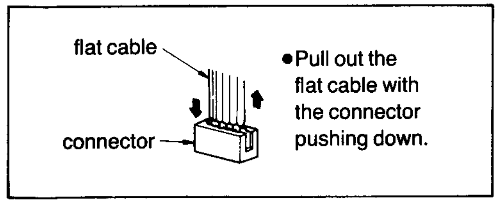
Ref No. 2 — How to remove the DAC P.C.B. (small size), the digital input terminal P.C.B. and the DAC P.C.B. (middle size)

Procedure
1→2

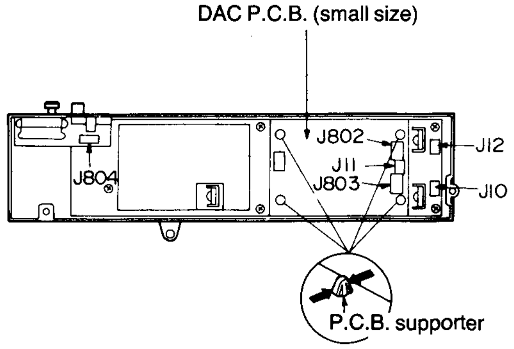
1. Remove the 2 screws (❶ and ❷) and remove the upper DAC shielding cover.
2. Disconnect the connector (J11) and pull out the 2 flat cables (J802 and J803).
3. Release the DAC P.C.B. (small size) from the 4 P.C.B. supporters.
4. Pull out the flat cable (J804).
5. Remove the 2 screws (❸ and ❹) and remove the digital input terminal P.C.B.
6. Disconnect the 2 connectors (J10 and J12).
7. Remove the 5 screws (❺~❾) and remove the DAC P.C.B. (middle size).

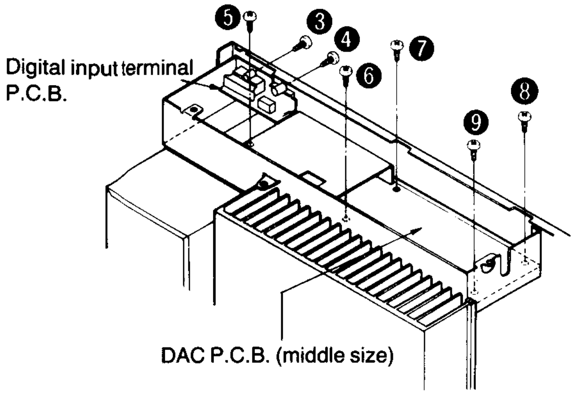

❶
Upper DAC shielding cover
❷

Note: How to remove the flat cable.


flat cable
connector

- Pull out the flat cable with the connector pushing down.

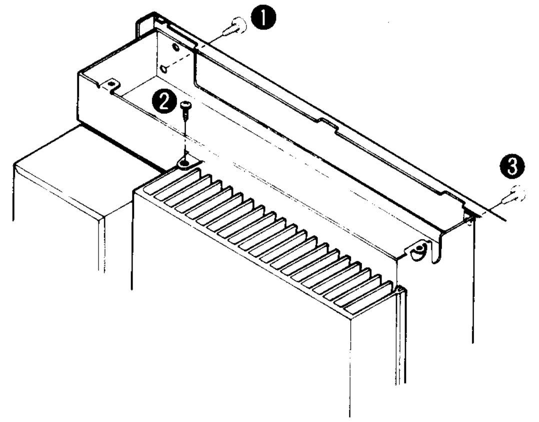

DAC P.C.B. (small size)
J804
J802
J11
J803
J12
J10
P.C.B. supporter


Digital input terminal P.C.B.
❺
❸
❹
❻
❼
❽
❾
DAC P.C.B. (middle size)

Ref No. 3 — How to remove the lower DAC shielding cover

Procedure
1→2→3

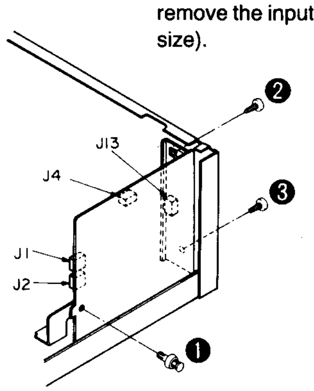
1. Remove the 3 screws (❶~❸).



Ref No. 4 — How to remove the input terminal P.C.B. (large size)

Procedure
1→2→3→4

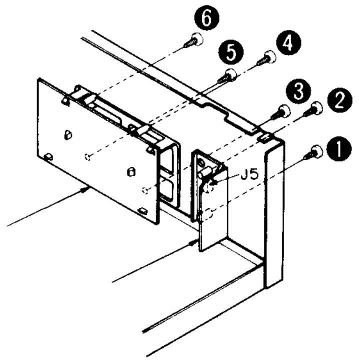
1. Disconnect the 4 connectors (J1, J2, J4 and J13).
2. Remove the latch (❶).
3. Remove the 2 screws (❷ and ❸) and remove the input terminal P.C.B. (large size).


❷
J13
J4
❸
J1
J2
❶

Ref No. 5 — How to remove the input terminal P.C.B. (small size) and the speaker terminal P.C.B.

Procedure
1→2→3→4→5

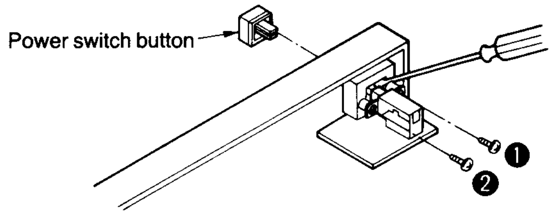
1. Disconnect the connector (J5).
2. Remove the 2 screws (❶ and ❷) and remove the input terminal P.C.B.
3. Remove the 4 screws (❸~❻) and remove the speaker terminal P.C.B.



Ref No. 6 — How to remove the power switch

Procedure
1→2→6

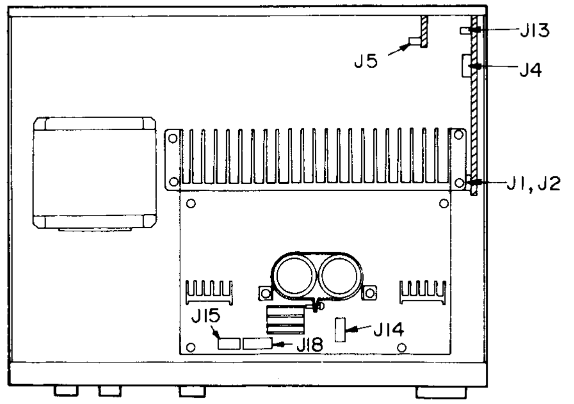
1. Push the power switch button from the back of the front cover by using a screwdriver and remove it.
2. Remove the 2 screws (❶ and ❷).

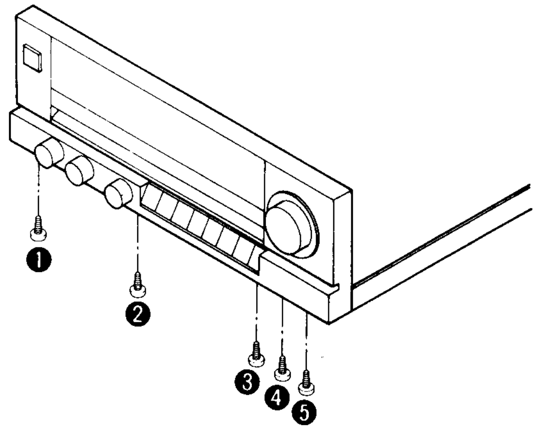

Power switch button
❶
❷

Ref No. 7 — How to remove the front panel

Procedure
1→2→3→4→7

1. Remove the 5 connectors (J1, J2, J4, J5 and J13) and 3 flat cables (J14, J15 and J18).
2. Remove the 5 screws (❶~❺).


J13
J5
J4
J1, J2
J15
J18
J14



Ref No. 8

How to remove the headphones, the tone, the power amp. direct, the LED, the main volume and phono selector P.C. Boards

Procedure
7→8

•Headphones P.C.B.

1. Remove the 2 screws (❶ and ❷).
2. Remove the headphones P.C.B. by releasing the claw in the direction of the arrow.

•Tone P.C.B.

3. Remove the 3 knobs (❸~❺) and 3 nuts (❻~❽).
4. Remove the tone P.C.B. by releasing the 2 claws in the direction of the arrows.
5. Disconnect the connector (J17).

•LED P.C.B.

6. Remove the LED P.C.B. by releasing the 2 claws in the direction of the arrows.

•Power amp. direct P.C.B.

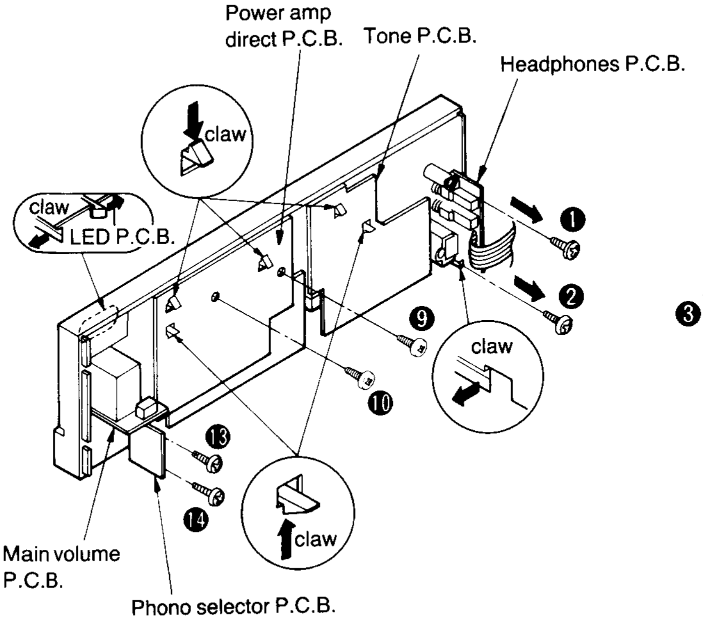
7. Remove the 2 screws (❾ and ❿).
8. Disconnect the connector (J6).
9. Remove the power amp. direct P.C.B. by releasing the 3 claws in the direction of the arrows.

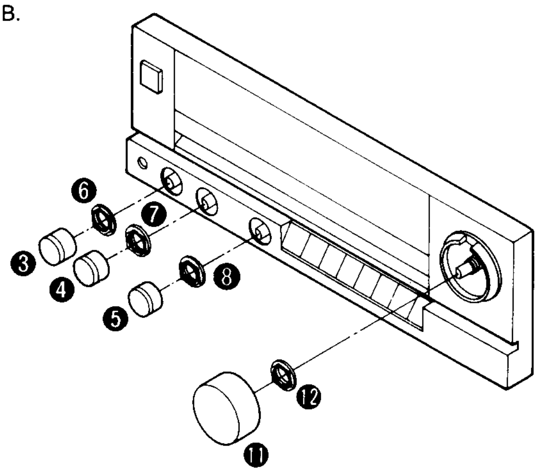
•Main volume P.C.B.

10. Remove the knob (⓫) and the nut (⓬).

•Phono selector P.C.B.

11. Remove the 2 screws (⓭ and ⓮) and remove the phono selector P.C.B.


Power amp
direct P.C.B.
Tone P.C.B.
Headphones P.C.B.
claw
claw
LED P.C.B.
❶
❷
❾
❿
claw
⓭
⓮
claw
Main volume
P.C.B.
Phono selector P.C.B.

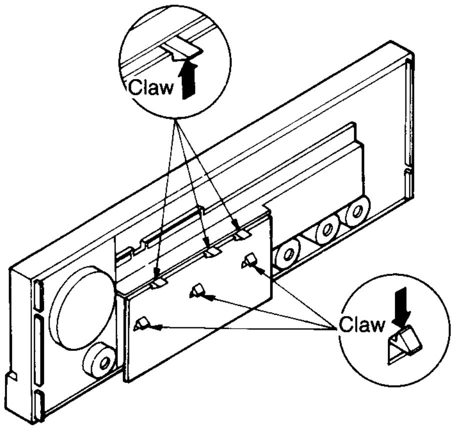


Ref No. 9

How to remove the indicator P.C.B.

Procedure
7→8→9

1. Remove the indicator P.C.B. by releasing the 6 claws in the direction of the arrows.

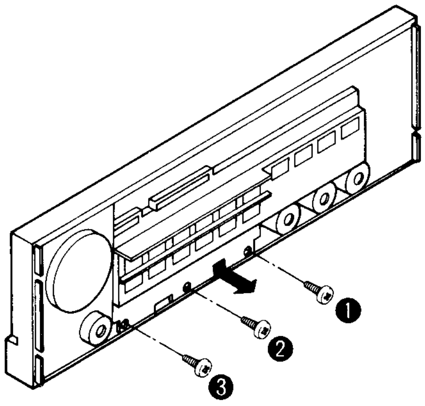


Ref No. 10

How to remove the operation switch P.C.B.

Procedure
7→8→9→10

1. Remove the 3 screws (❶~❸).
2. Remove the operation switch P.C.B. in the direction of the arrow.

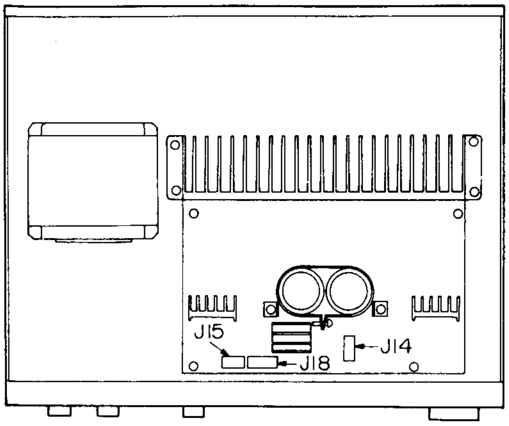


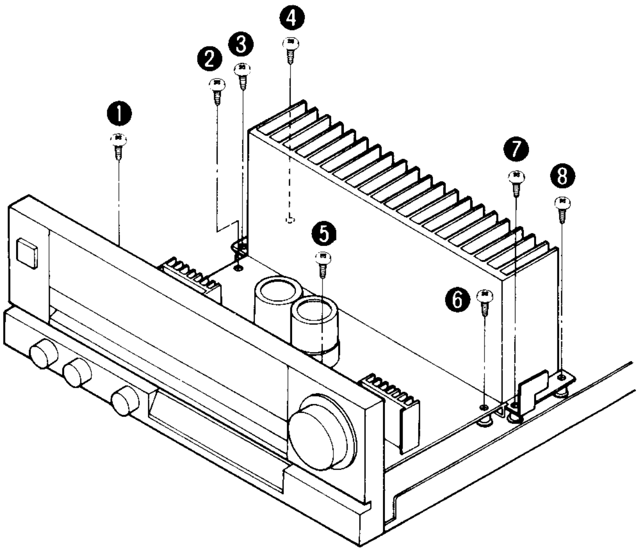
Ref No. 11

How to remove the main P.C.B.

Procedure
1→2→3→4→12

1. Pull out the 3 flat cables (J14, J15 and J18).
2. Remove the 8 screws (❶~❽).



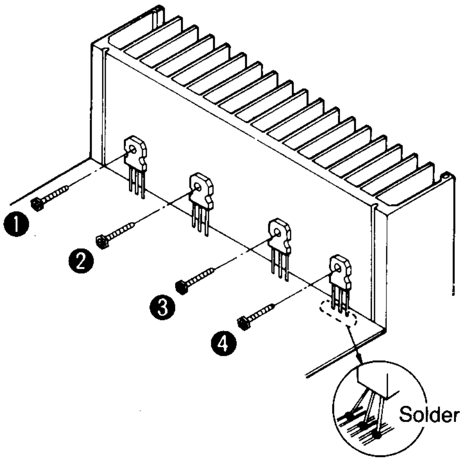


Ref No. 12

How to remove the power transistors

Procedure
1→2→3→
4→11→12

1. Unsolder the terminals of the power transistors.
2. Remove the 4 screws (❶~❹).



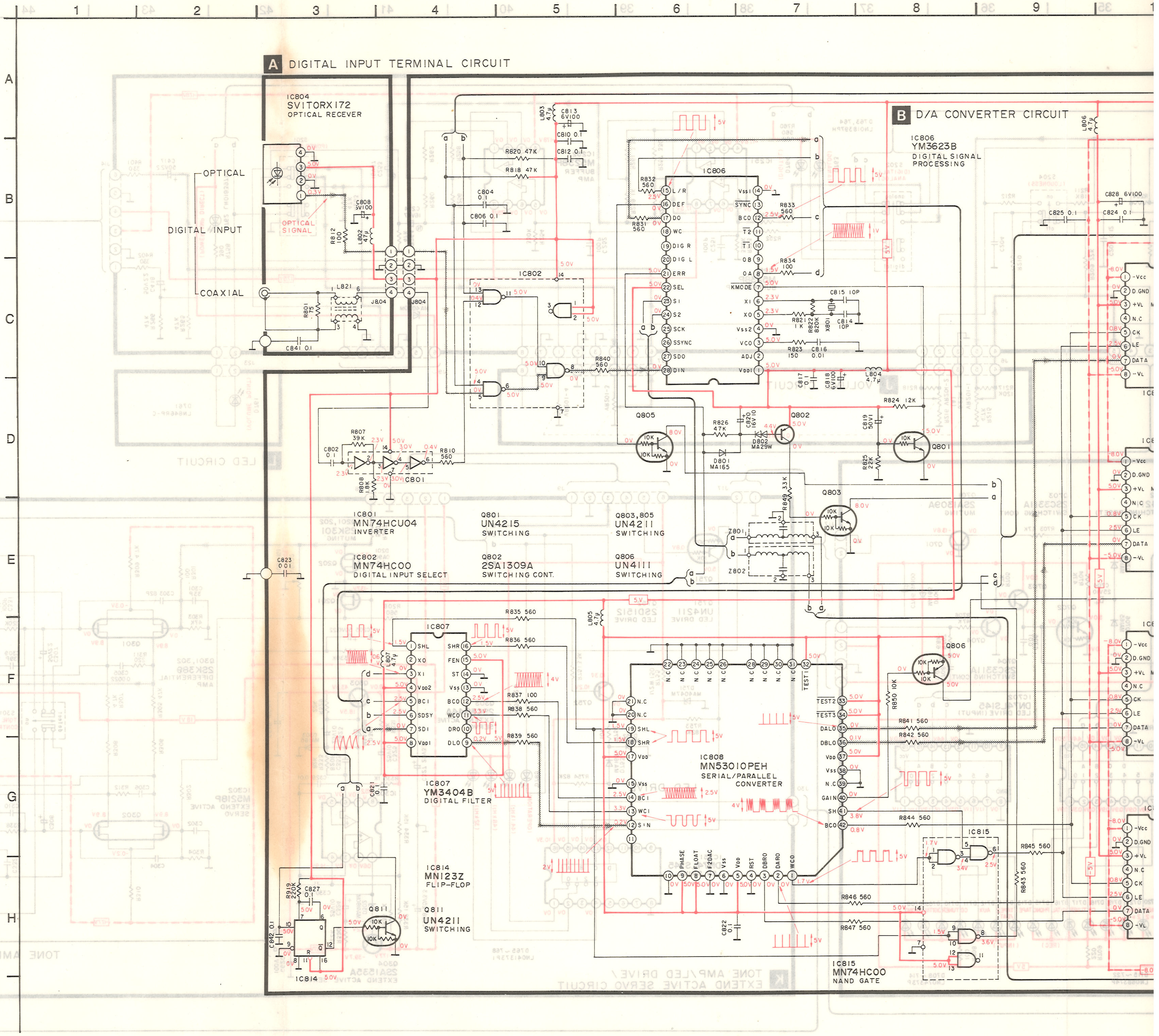
Caution:
When reinstalling the power transistors, be sure to apply silicone compond (SZZ0L15) to the back of the power transistors.

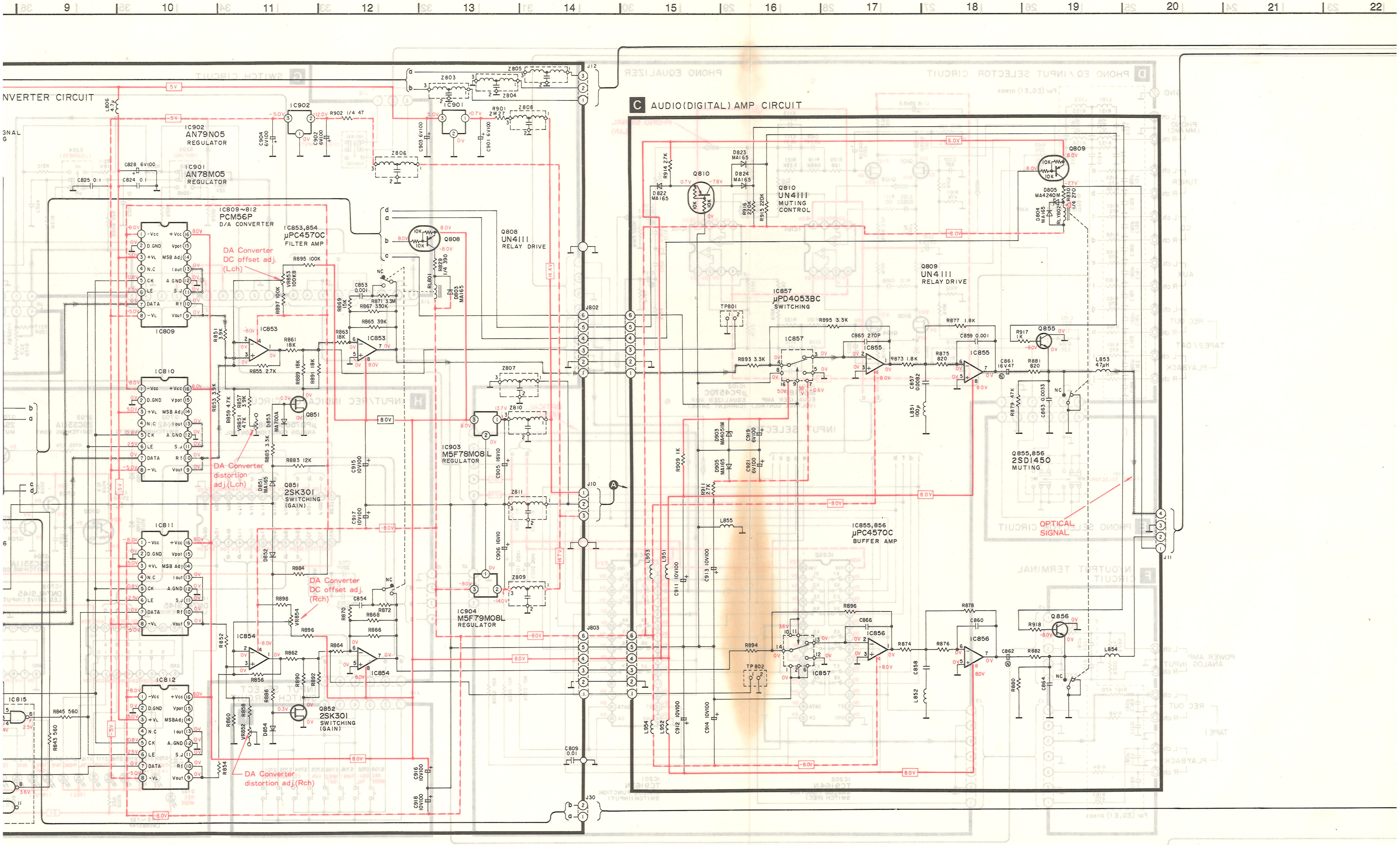
■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

1. **S1** : Power switch in **"on"** position.
   (▮ off, ▬ on)
2. **S2** : Voltage selector in "240 V" position.
   For (EK), (XL), (XA), (PA) and (PC) areas.
3. **S101** : Phono selector switch in **"MM"** position.
   (▮ MM, ▬ MC)
4. **S201** : Power amp direct switch in **"off"** position.
   (▮ off, ▬ on)
5. **S202** : Digital/analog selector switch in **"analog"** position.
   (▮ analog, ▬ digital)
6. **S203** : Audio muting switch in **"0 dB"** position.
   (▮ 0 dB, ▬ −20 dB)
7. **S204** : Loudness switch in **"off"** position.
   (▮ off, ▬ on)
8. **S301** : Tone control switch in **"defeat"** position.
   (▮ defeat, ▬ on)
9. **S501-1** : Speaker select switch in **"on"** position.
   (▮ off, ▬ on)
10. **S501-2** : Speaker select switch in **"main"** position.
    (▮ main, ▬ remote)
11. **S701~S706, S708, S709**
    : Input/recording-source selector switch in **"phono"** position.
    S701: phono S702: digital S703: tuner
    S704: CD S705: aux S706: tape 1
    S708: tape 2/DAT S709: rec mode
12. **S801** : Digital input selector switch in **"optical"** position.
    (▮ optical, ▬ coaxial)
13. ⟿ : Optical signal (Lch). ⇒ : Phono signal (Lch).
14. —▭— Positive voltage lines.
15. -◦-▭-◦- Negative voltage lines.
16. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
17. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

***Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care furing repair.
*Cover the parts boxes made of plastics with aluminum foil.
*Ground the soldering iron.
*Put a conductive mat on the work table.
*Do not touch the legs of IC or LSI with the fingers directly.


A DIGITAL INPUT TERMINAL CIRCUIT
B D/A CONVERTER CIRCUIT
IC804 SVITORX172 OPTICAL RECEVER
OPTICAL
DIGITAL INPUT
COAXIAL
OPTICAL SIGNAL
IC806 YM3623B DIGITAL SIGNAL PROCESSING
IC801 MN74HCU04 INVERTER
IC802 MN74HC00 DIGITAL INPUT SELECT
Q801 UN4215 SWITCHING
Q802 2SA1309A SWITCHING CONT.
Q803, 805 UN4211 SWITCHING
Q806 UN4111 SWITCHING
IC807 YM3404B DIGITAL FILTER
IC808 MN53010PEH SERIAL/PARALLEL CONVERTER
IC814 MN1123Z FLIP-FLOP
Q811 UN4211 SWITCHING
IC815 MN74HC00 NAND GATE
1 2 3 4 5 6 7 8 9
A B C D E F G H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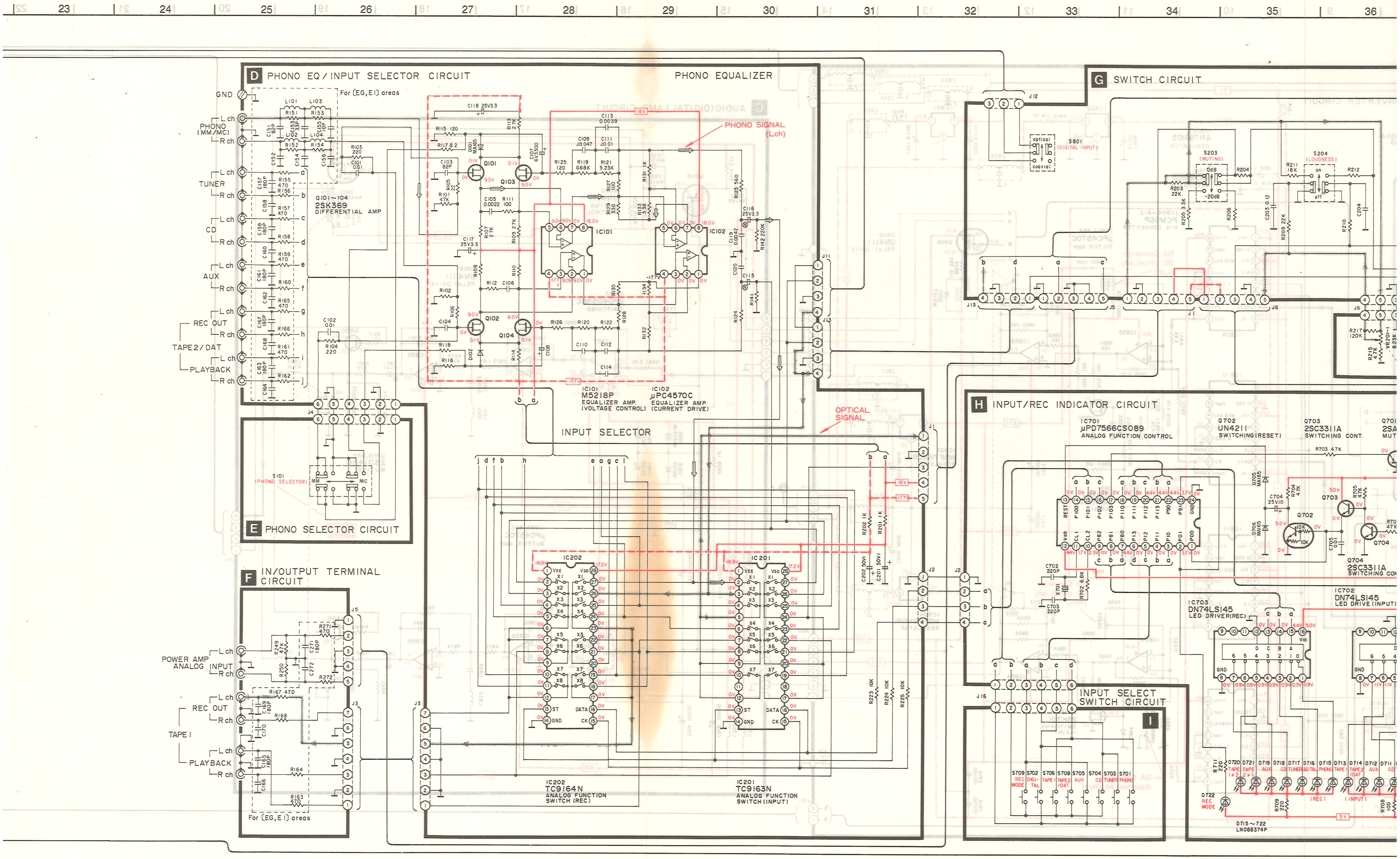
INVERTER CIRCUIT
C AUDIO(DIGITAL) AMP CIRCUIT
IC902
AN79N05
REGULATOR
IC901
AN78M05
REGULATOR
IC809~812
PCM56P
D/A CONVERTER
IC853,854
μPC4570C
FILTER AMP
Q808
UN4111
RELAY DRIVE
IC903
M5F78M08L
REGULATOR
IC904
M5F79M08L
REGULATOR
Q851
2SK301
SWITCHING
(GAIN)
Q852
2SK301
SWITCHING
(GAIN)
DA Converter
DC offset adj.
(Lch)
DA Converter
distortion
adj.(Lch)
DA Converter
DC offset adj.
(Rch)
DA Converter
distortion adj.(Rch)
IC809
IC810
IC811
IC812
IC815
IC853
IC854
J12
J802
J10
J803
J30
J11
A
Q810
UN4111
MUTING
CONTROL
Q809
UN4111
RELAY DRIVE
IC857
μPD4053BC
SWITCHING
IC855
IC856
IC855,856
μPC4570C
BUFFER AMP
Q855
Q856
Q855,856
2SD1450
MUTING
OPTICAL
SIGNAL
TP801
TP802
D822 MA165
D823 MA165
D824 MA165
D805 MA4240M
D803 MA165
R914 2.7K
R916 220K
R915 220K
R895 3.3K
R893 3.3K
R877 1.8K
R873 1.8K
R875 820
R881 820
C865 270P
C859 0.001
C861 16V47
L853 47μH
L855
Z803
Z804
Z805
Z806
Z807
Z808
Z809
Z810
Z811
R901 2W27
R902 1/4 47
C904 6V100
C902 6V100
C903 6V100
C901 6V100
C828 6V100
C825 0.1
C824 0.1
R895 100K
R897 100K
VR853 100KB
R851 3.9K
R861 18K
R863 18K
R865 39K
R867 330K
R871 3.3M
R869 15K
C853 0.001
R855 2.7K
R889 18K
R891 18K
R853 3.9K
R859 47K
R857 3.9K
VR851 47K
D853 MA700A
R883 12K
R885 3.3K
D851 MA165
C915 10V100
C905 16V10
C917 10V100
C906 16V10
C916 10V100
C918 10V100
C809 0.01
R845 560
R843 560
R829 1/4 390
RL801
8.0V
-8.0V
5V
-5V
NC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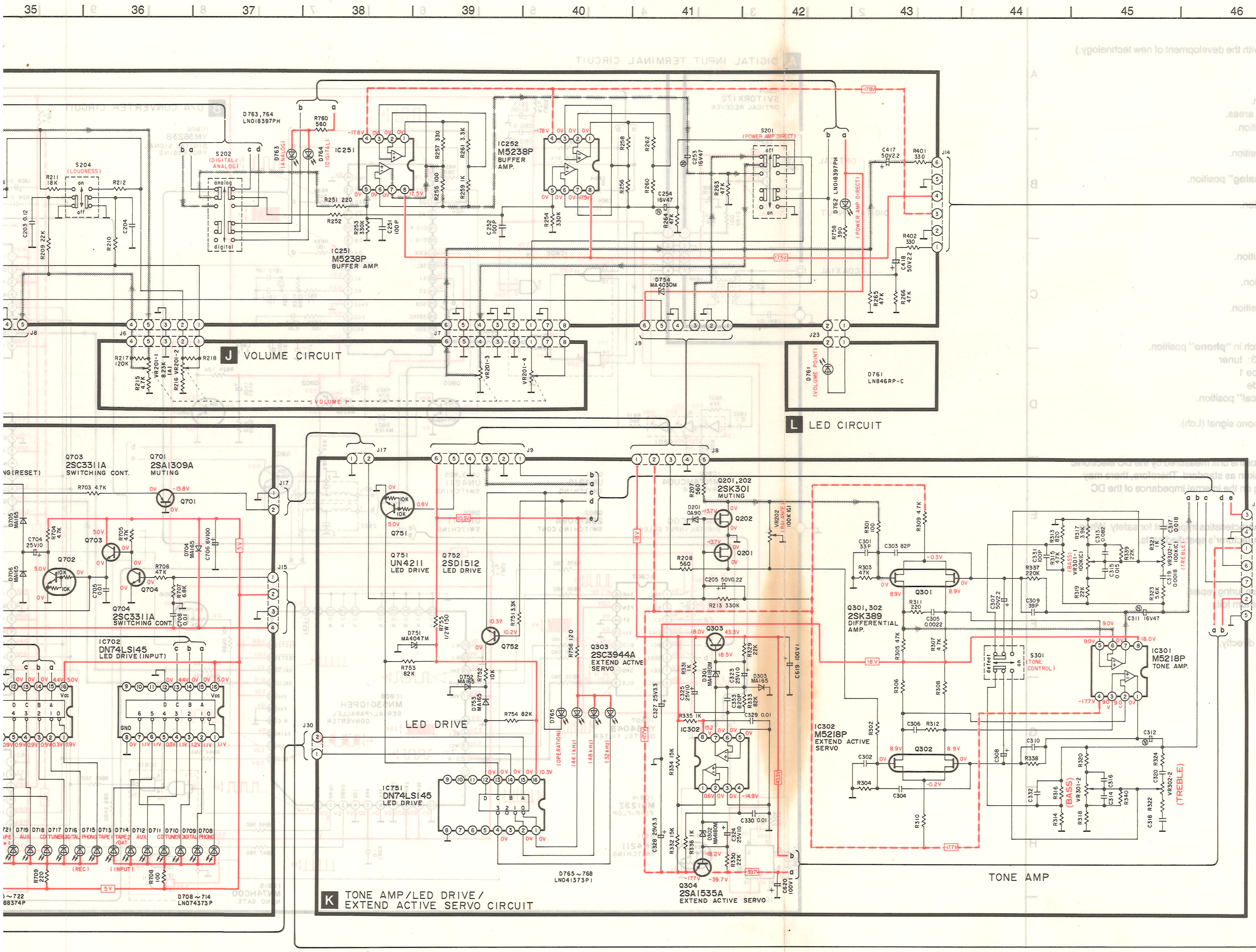
D PHONO EQ / INPUT SELECTOR CIRCUIT
PHONO EQUALIZER
GND
PHONO (MM/MC)
L ch
R ch
TUNER
CD
AUX
REC OUT
TAPE2/DAT
PLAYBACK
For (EG,EI) areas
PHONO SIGNAL (Lch)
Q101~104 2SK369 DIFFERENTIAL AMP
IC101 M5218P EQUALIZER AMP (VOLTAGE CONTROL)
IC102 μPC4570C EQUALIZER AMP (CURRENT DRIVE)
INPUT SELECTOR
OPTICAL SIGNAL
E PHONO SELECTOR CIRCUIT
S101 (PHONO SELECTOR)
MM
MC
F IN/OUTPUT TERMINAL CIRCUIT
POWER AMP ANALOG INPUT
TAPE 1
IC202 TC9164N ANALOG FUNCTION SWITCH (REC)
IC201 TC9163N ANALOG FUNCTION SWITCH (INPUT)
G SWITCH CIRCUIT
S801 (DIGITAL INPUT)
optical
coaxial
S203 (MUTING)
0dB
-20dB
S204 (LOUDNESS)
on
off
H INPUT/REC INDICATOR CIRCUIT
IC701 μPD7566CS089 ANALOG FUNCTION CONTROL
Q702 UN4211 SWITCHING (RESET)
Q703 2SC3311A SWITCHING CONT.
Q704 2SC3311A SWITCHING CON
IC703 DN74LS145 LED DRIVER (REC)
IC702 DN74LS145 LED DRIVE (INPUT)
I INPUT SELECT SWITCH CIRCUIT
S709 REC MODE
S702 DIGITAL
S706 TAPE1
S708 TAPE2/DAT
S705 AUX
S704 CD
S703 TUNER
S701 PHONO
D722 REC MODE
D715~722 LN088374P
(REC)
(INPUT)
5V
18V
-17.7V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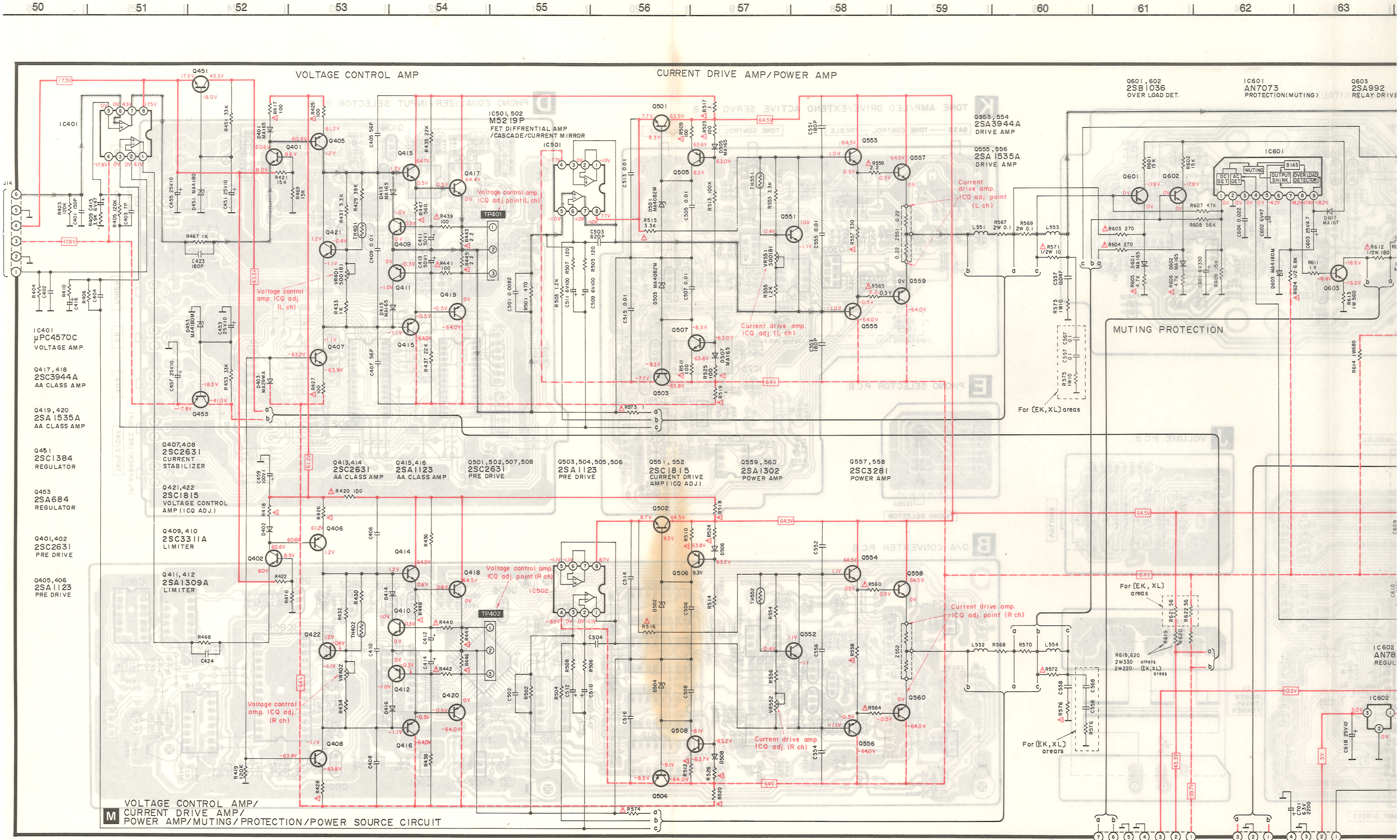
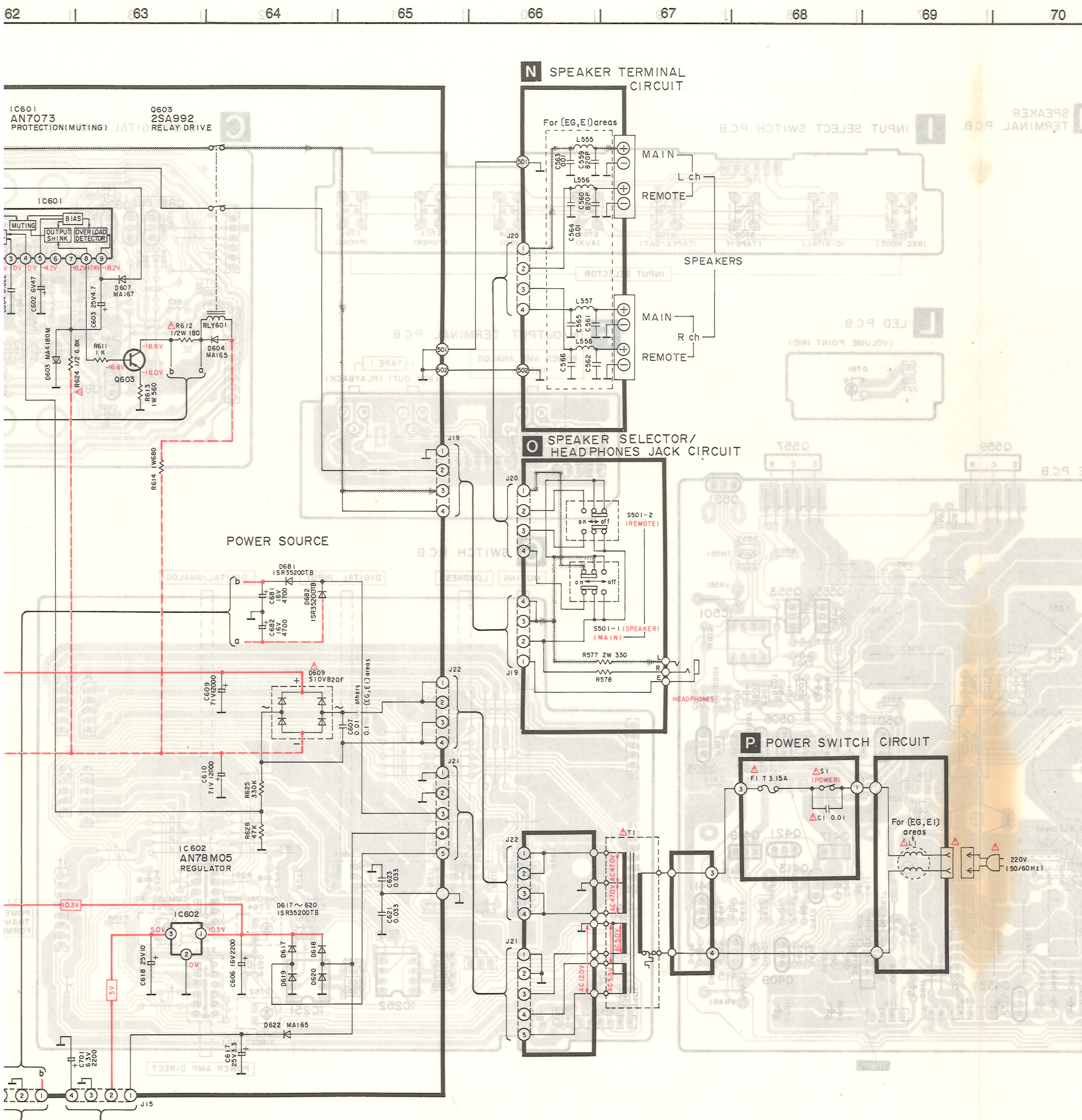
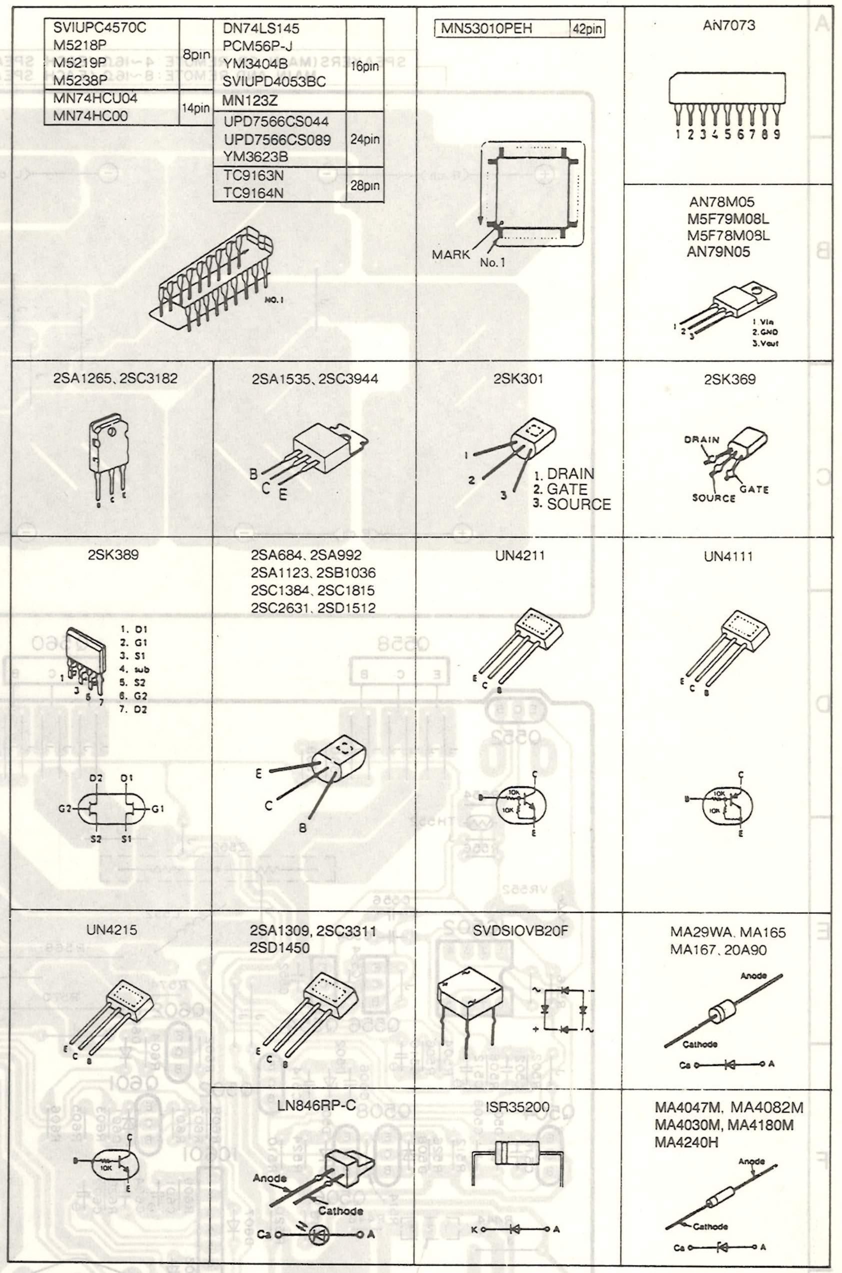
S204 (LOUDNESS)
R211 18K
R212
C203 0.12
R209 22K
R210
C204
S202 (DIGITAL/ANALOG)
analog
digital
D763,764 LN01839PH
D763 (ANALOG)
D764 (DIGITAL)
R760 560
IC251
IC251 M5238P BUFFER AMP.
IC252 M5238P BUFFER AMP.
R251 220
R252
R253 330K
C251 100P
R255 100
R257 330
R259 1K
R261 3.3K
C252 100P
R254 330K
R256
R258
R260
R262
C253 16V47
C254 16V47
R263 47K
R264 47K
S201 (POWER AMP DIRECT)
off
on
D762 LN01839PH (POWER AMP DIRECT)
R758 390
C417 50V2.2
R401 330
R402 330
C418 50V2.2
R265 47K
R266 47K
J14
D754 MA4030M
J6
J7
J8
J9
J23
J VOLUME CIRCUIT
R217 120K
R215 4.7K
VR201-1 8.23K (A)
R216
VR201-2
R218
VR201-3
VR201-4
(VOLUME)
D761 (VOLUME POINT)
D761 LN846RP-C
L LED CIRCUIT
Q703 2SC3311A SWITCHING CONT.
Q701 2SA1309A MUTING
(RESET)
R703 4.7K
Q701
D705 MA165
C704 25V10
R704 4.7K
Q703
R705 4.7K
D704 MA165
C706 6V100
Q702
D706 MA165
R706 47K
C705 0.01
Q704
R707 6.8K
C708 0.01
Q704 2SC3311A SWITCHING CONT.
J15
J17
IC702 DN74LS145 LED DRIVE (INPUT)
GND
Vcc
D719 D718 D717 D716 D715 D713 D714 D712 D711 D710 D709 D708
AUX CD TUNER DIGITAL PHONO TAPE 1 TAPE 2/DAT AUX CD TUNER DIGITAL PHONO
(REC)
(INPUT)
R709 220
R708 100
D708~714 LN07437BP
J30
Q751
Q751 UN4211 LED DRIVE
Q752 2SD1512 LED DRIVE
D751 MA4047M
R753 82K
R755 1/2W 150
R751 3.3K
Q752
D752 MA165
R752 10K
D753 MA165
R754 82K
R756 120
D765
(OPERATION)
(44.1kHz)
(48kHz)
(32kHz)
LED DRIVE
IC751 DN74LS145 LED DRIVE
D765~768 LN04137BP1
Q303 2SC3944A EXTEND ACTIVE SERVO
Q201,202 2SK301 MUTING
R207 560
D201 OA90
Q202
Q201
R208 560
VR202 (BALANCE) 100K(G)
C205 50V0.22
R213 330K
Q303
R329 22K
D301 MA4180M
C323 25V10
D303 MA165
C325 25V10
R331
C333 820P
R333 82K
C327 25V3.3
R335 1K
C329 0.01
IC302
C619 100V1
R334 15K
C328 25V3.3
R332 15K
R336 1K
D302 MA4180M
C324 25V10
C330 0.01
R330 22K
Q304
Q304 2SA1535A EXTEND ACTIVE SERVO
C620 100V1
K TONE AMP/LED DRIVE/ EXTEND ACTIVE SERVO CIRCUIT
R301 100
R309 4.7K
C301 33P
C303 82P
R303 47K
Q301
R311 220
C305 0.0022
Q301,302 2SK389 DIFFERENTIAL AMP.
R305 47K
R307 4.7K
R306
R308
IC302 M5218P EXTEND ACTIVE SERVO
R302
C306
R312
C302
Q302
R304
C304
R310
C307 50V2.2
C309 39P
R337 220K
C331 390P
R315 4.7K
R316 820
R317 3.9K
C313 0.082
R339 22K
R321 1K
VR301-1 100K(C) (BASS)
C315 0.015
R319 22K
R323 5.6K
C319 0.0018
VR302-1 100K(C) (TREBLE)
C317 0.0018
C311 16V47
S301 (TONE CONTROL)
defeat
on
IC301 M5218P TONE AMP.
C308
C310
R338
C312
C332
R314
R316
(BASS)
VR301-2
R318
C314
C316
R320
R340
C318
R322
C320
R324
VR302-2
(TREBLE)
J18
TONE AMP
-17.8V
17.5V
18V
-37V
-13.7V
10.3V
5V
18.0V
43.3V
-14.9V
-18.2V
-39.7V
-17.7V
8.9V
9.0V
-0.3V
-0.2V


50
51
52
53
54
55
56
57
58
59
60
61
62
63
VOLTAGE CONTROL AMP
CURRENT DRIVE AMP/POWER AMP
MUTING PROTECTION
IC401 μPC4570C VOLTAGE AMP
Q417,418 2SC3944A AA CLASS AMP
Q419,420 2SA1535A AA CLASS AMP
Q451 2SC1384 REGULATOR
Q453 2SA684 REGULATOR
Q401,402 2SC2631 PRE DRIVE
Q405,406 2SA1123 PRE DRIVE
Q407,408 2SC2631 CURRENT STABILIZER
Q421,422 2SC1815 VOLTAGE CONTROL AMP (ICQ ADJ.)
Q409,410 2SC3311A LIMITER
Q411,412 2SA1309A LIMITER
Q413,414 2SC2631 AA CLASS AMP
Q415,416 2SA1123 AA CLASS AMP
Q501,502,507,508 2SC2631 PRE DRIVE
Q503,504,505,506 2SA1123 PRE DRIVE
Q551,552 2SC1815 CURRENT DRIVE AMP (ICQ ADJ)
Q559,560 2SA1302 POWER AMP
Q557,558 2SC3281 POWER AMP
IC501,502 M5219P FET DIFFERENTIAL AMP /CASCADE/CURRENT MIRROR
Q553,554 2SA3944A DRIVE AMP
Q555,556 2SA1535A DRIVE AMP
Q601,602 2SB1036 OVER LOAD DET.
IC601 AN7073 PROTECTION(MUTING)
Q603 2SA992 RELAY DRIVE
Voltage control amp ICQ adj. (L ch)
Voltage control amp. ICQ adj. point (L ch)
Voltage control amp. ICQ adj. point (R ch)
Voltage control amp. ICQ adj. (R ch)
Current drive amp. ICQ adj. point (L ch)
Current drive amp. ICQ adj. (L ch)
Current drive amp. ICQ adj. point (R ch)
Current drive amp. ICQ adj. (R ch)
TP401
TP402
For (EK, XL) areas
R619,620 2W330 others 2W220 (EK,XL) areas
DC DET
AC DET
MUTING
OUTPUT SHINK
BIAS
OVER LOAD DETECTOR
J14
J18
J10
J15
IC602

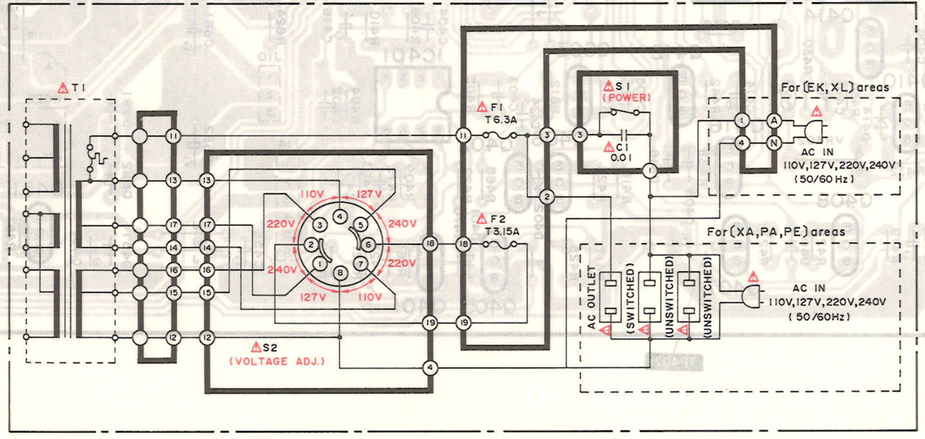
M VOLTAGE CONTROL AMP/ CURRENT DRIVE AMP/ POWER AMP/MUTING/PROTECTION/POWER SOURCE CIRCUIT


62
63
64
65
66
67
68
69
70
IC601
AN7073
PROTECTION(MUTING)
Q603
2SA992
RELAY DRIVE
IC601
MUTING
BIAS
OUTPUT SHINK
OVER LOAD DETECTOR
0V
0V
-4.2V
-18.2V
17.4V
-18.2V
C602 6V47
C603 25V4.7
D607 MA167
D603 MA4180M
R624 1/2 6.8K
R611 1K
-16.8V
-18.6V
-16.0V
Q603
R613 1W560
R612 1/2W 180
RLY601
D604 MA165
R614 1W680
POWER SOURCE
D681 ISR35200TB
C681 16V 4700
C682 16V 4700
D682 ISR35200TB
D609 S10VB20F
C609 71V12000
C610 71V 12000
C607 0.01 ...... others 0.1 ...... (EG, EI) areas
R625 330K
R626 47K
IC602
AN78M05
REGULATOR
10.3V
IC602
5.0V
10.3V
0V
5V
C618 25V10
C606 16V2200
D617～620 ISR35200TB
D617
D618
D619
D620
D622 MA165
C701 6.3V 2200
C617 25V3.3
C623 0.033
C621 0.033
J15
J19
J20
J21
J22
501
502
N SPEAKER TERMINAL CIRCUIT
For (EG, EI) areas
L555
C563 0.01
C559 820P
L556
C560 820P
C564 0.01
L557
C565
C561
L558
C566
C562
MAIN
L ch
REMOTE
SPEAKERS
MAIN
R ch
REMOTE
O SPEAKER SELECTOR/ HEADPHONES JACK CIRCUIT
on off
S501-2 (REMOTE)
on off
S501-1 (SPEAKER) (MAIN)
R577 2W 330
R578
L
R
E
HEADPHONES
T1
AC 47.0V
AC 47.0V
AC 12.0V
AC 5.0V
AC 5.3V
P POWER SWITCH CIRCUIT
F1 T3.15A
S1 (POWER)
C1 0.01
For (EG, EI) areas
L1
220V (50/60Hz)

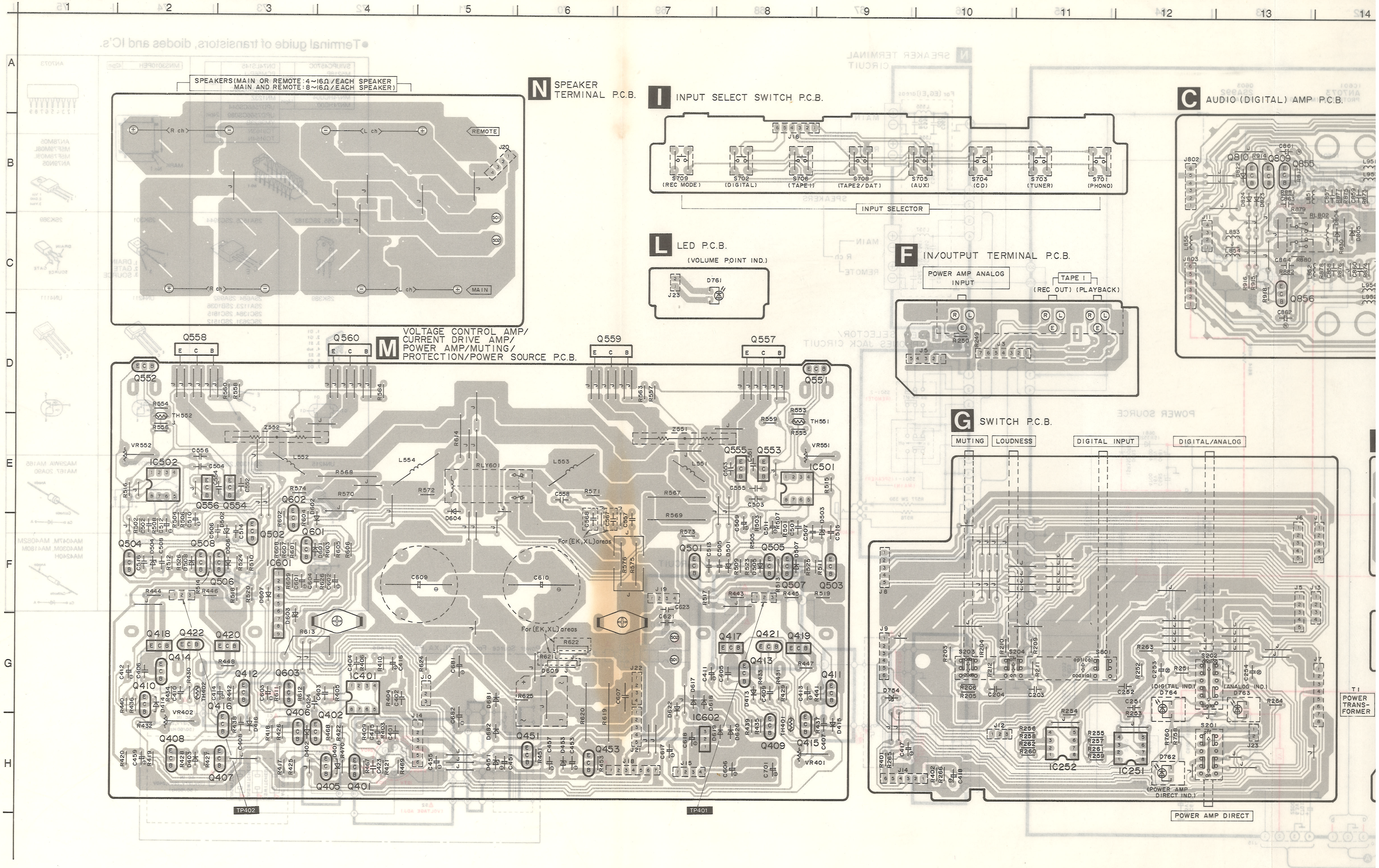
●Terminal guide of transistors, diodes and IC's.

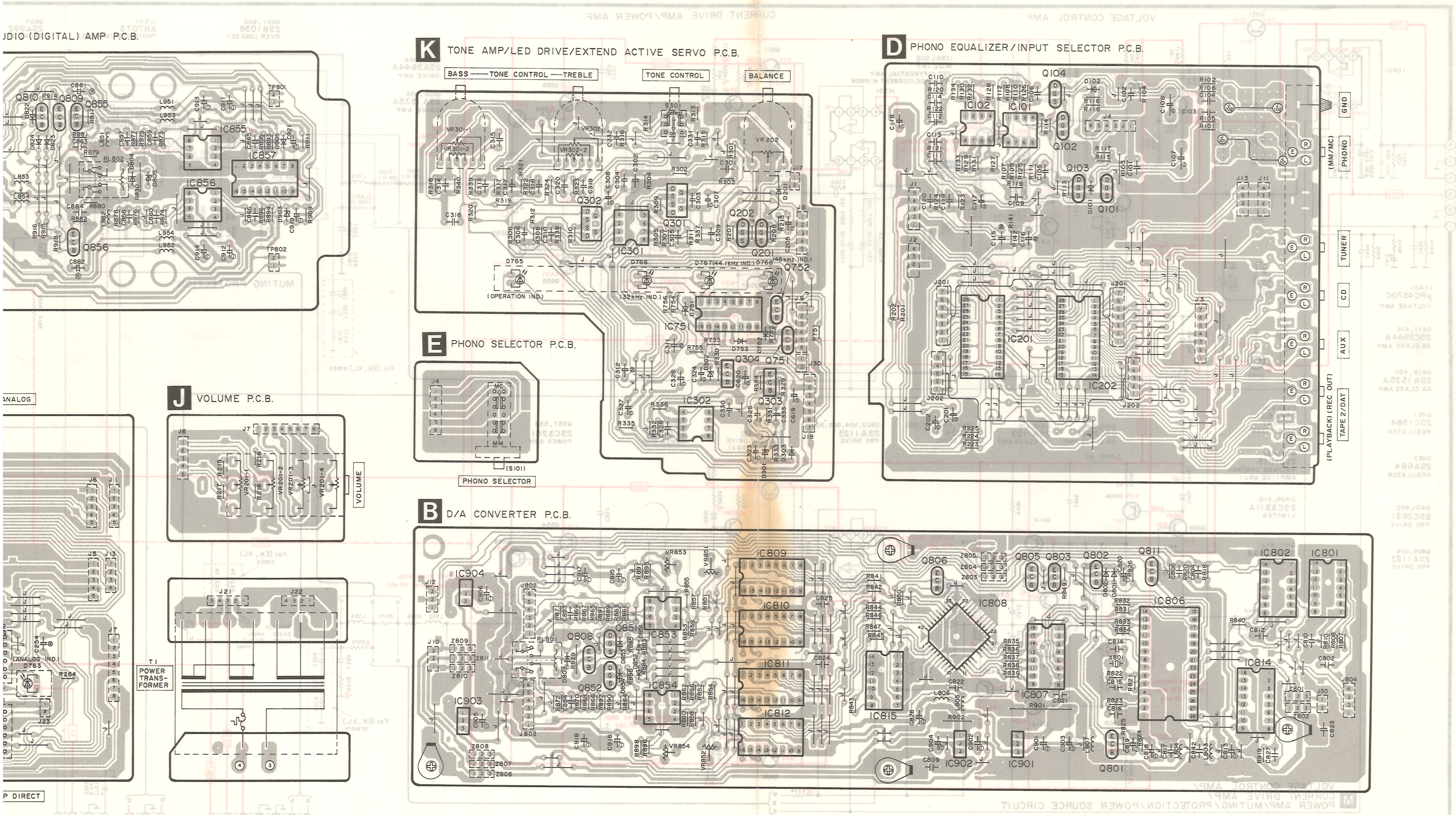

SVIUPC4570C
M5218P
M5219P
M5238P
8pin
MN74HCU04
MN74HC00
14pin
DN74LS145
PCM56P-J
YM3404B
SVIUPD4053BC
MN123Z
16pin
UPD7566CS044
UPD7566CS089
YM3623B
24pin
TC9163N
TC9164N
28pin
NO. 1
MN53010PEH
42pin
MARK
No. 1
AN7073
1 2 3 4 5 6 7 8 9
AN78M05
M5F79M08L
M5F78M08L
AN79N05
1. Vin
2. GND
3. Vout
2SA1265, 2SC3182
2SA1535, 2SC3944
B
C
E
2SK301
1. DRAIN
2. GATE
3. SOURCE
2SK369
DRAIN
SOURCE
GATE
2SK389
1. D1
2. G1
3. S1
4. sub
5. S2
6. G2
7. D2
D2
D1
G2
G1
S2
S1
2SA684, 2SA992
2SA1123, 2SB1036
2SC1384, 2SC1815
2SC2631, 2SD1512
E
C
B
UN4211
10K
10K
UN4111
10K
10K
UN4215
10K
2SA1309, 2SC3311
2SD1450
SVDSIOVB20F
MA29WA, MA165
MA167, 20A90
Anode
Cathode
Ca
A
LN846RP-C
Anode
Cathode
Ca
A
ISR35200
K
A
MA4047M, MA4082M
MA4030M, MA4180M
MA4240H
Anode
Cathode
Ca
A

Power Source For (EK, XL, XA, PA, PE) areas.

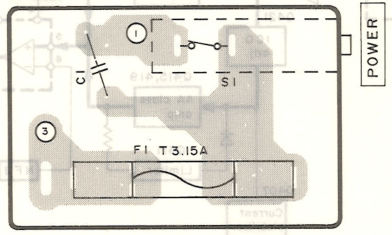

T1
F1
T6.3A
F2
T3.15A
S1 (POWER)
C1 0.01
110V
127V
220V
240V
240V
220V
127V
110V
S2 (VOLTAGE ADJ.)
For (EK, XL) areas
AC IN 110V, 127V, 220V, 240V (50/60Hz)
For (XA, PA, PE) areas
AC OUTLET
(SWITCHED)
(UNSWITCHED)
(UNSWITCHED)
AC IN 110V, 127V, 220V, 240V (50/60Hz)

■ PRINTED CIRCUIT BOARDS

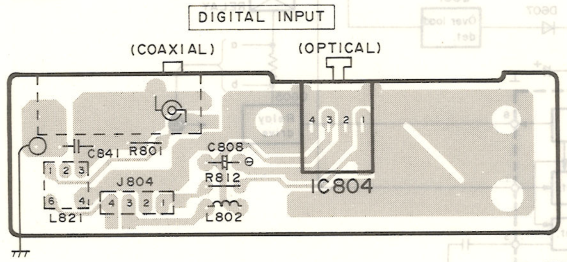

N SPEAKER TERMINAL P.C.B.
SPEAKERS(MAIN OR REMOTE: 4~16Ω/EACH SPEAKER
MAIN AND REMOTE: 8~16Ω/EACH SPEAKER)
R ch
L ch
REMOTE
MAIN
J20
I INPUT SELECT SWITCH P.C.B.
J16
S709 (REC MODE)
S702 (DIGITAL)
S706 (TAPE 1)
S708 (TAPE2/DAT)
S705 (AUX)
S704 (CD)
S703 (TUNER)
S701 (PHONO)
INPUT SELECTOR
L LED P.C.B.
(VOLUME POINT IND.)
D761
J23
F IN/OUTPUT TERMINAL P.C.B.
POWER AMP ANALOG INPUT
TAPE I
(REC OUT) (PLAYBACK)
J3
J5
C AUDIO (DIGITAL) AMP P.C.B.
Q810
Q809
Q855
Q856
J802
J803
M VOLTAGE CONTROL AMP/ CURRENT DRIVE AMP/ POWER AMP/MUTING/ PROTECTION/POWER SOURCE P.C.B.
Q558
Q560
Q559
Q557
E C B
Q552
Q551
IC502
IC501
RLY601
L554
L553
L552
L551
Z552
Z551
C609
C610
IC601
IC401
IC602
For (EK, XL) areas
TP402
TP401
G SWITCH P.C.B.
MUTING
LOUDNESS
DIGITAL INPUT
DIGITAL/ANALOG
S203
S204
S601
optical
coaxial
S202
(DIGITAL IND.)
(ANALOG IND.)
D764
D763
D762
(POWER AMP DIRECT IND.)
POWER AMP DIRECT
IC252
IC251
S201
T1 POWER TRANS- FORMER
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H


UDIO (DIGITAL) AMP P.C.B.
IC855
IC856
IC857
Q810
Q809
Q855
Q856
TP801
TP802
K TONE AMP/LED DRIVE/EXTEND ACTIVE SERVO P.C.B.
BASS — TONE CONTROL — TREBLE
TONE CONTROL
BALANCE
VR301-1
VR301-2
VR302
VR302-2
VR202
S301
Q302
Q301
Q202
Q201
IC301
D765
(OPERATION IND.)
D766
(32kHz IND.)
D767 (44.1kHz IND.)
D768 (48kHz IND.)
Q752
IC751
Q304
Q751
Q303
IC302
D PHONO EQUALIZER/INPUT SELECTOR P.C.B.
Q104
Q102
IC101
Q103
Q101
IC201
IC202
J201
J202
GND
PHONO (MM/MC)
TUNER
CD
AUX
TAPE 2/DAT (PLAYBACK) (REC OUT)
E PHONO SELECTOR P.C.B.
MC
MM
(S101)
PHONO SELECTOR
J VOLUME P.C.B.
VR201-1
VR201-2
VR201-3
VR201-4
VOLUME
ANALOG
(ANALOG IND.)
D763
T1 POWER TRANS-FORMER
P DIRECT
B D/A CONVERTER P.C.B.
IC904
IC903
Q808
Q851
Q852
IC853
IC854
IC809
IC810
IC811
IC812
IC815
IC808
Q806
Q805
Q803
Q802
Q811
IC807
IC806
IC802
IC801
IC814
IC902
IC901
Q801
VR853
VR851
VR854
VR852

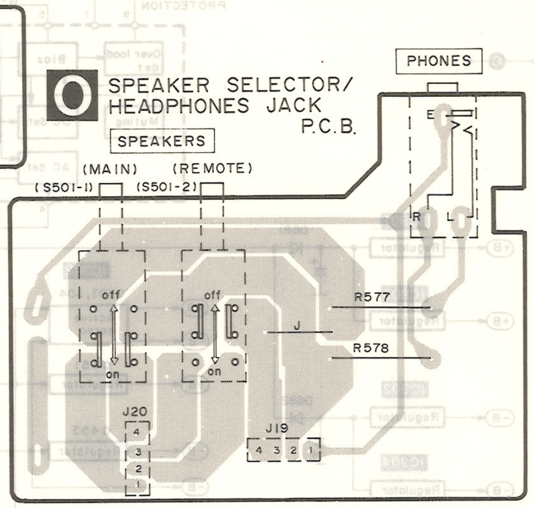
P POWER SWITCH P.C.B.

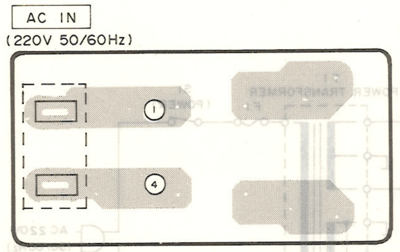

C1
S1
F1 T3.15A
POWER
①
③

A DIGITAL INPUT TERMINAL P.C.B.

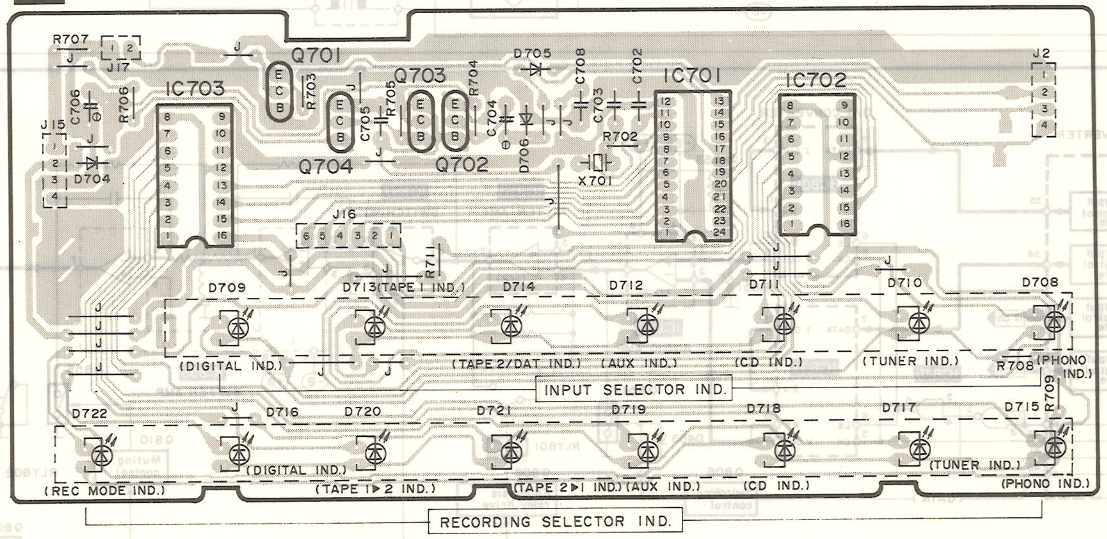

DIGITAL INPUT
(COAXIAL)
(OPTICAL)
C841
R801
C808
R812
J804
L821
L802
IC804
4 3 2 1

O SPEAKER SELECTOR/ HEADPHONES JACK P.C.B.

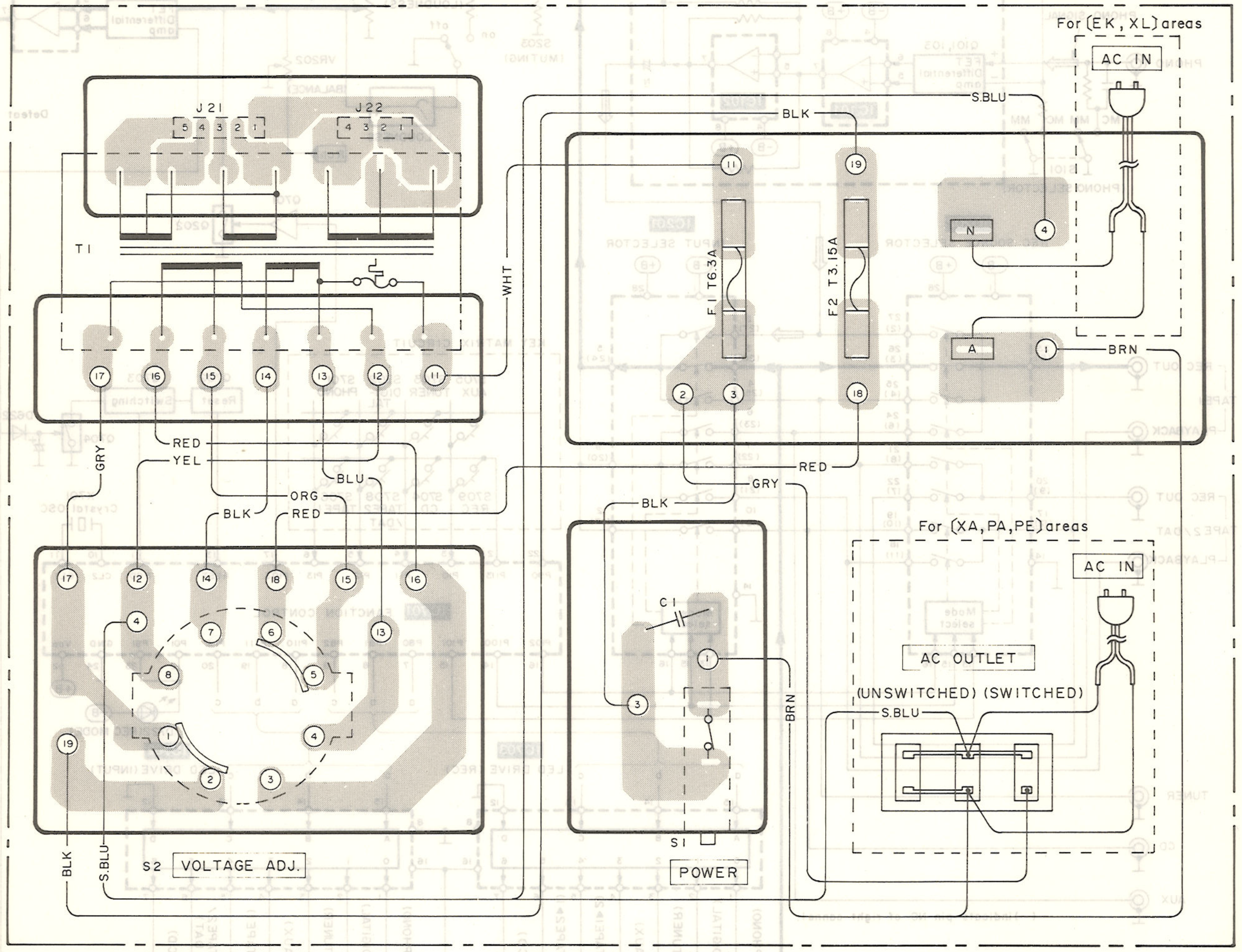

PHONES
SPEAKERS
(MAIN)
(REMOTE)
(S501-1)
(S501-2)
off
on
R577
R578
J20
J19
4 3 2 1
R
L


AC IN
(220V 50/60Hz)
①
④

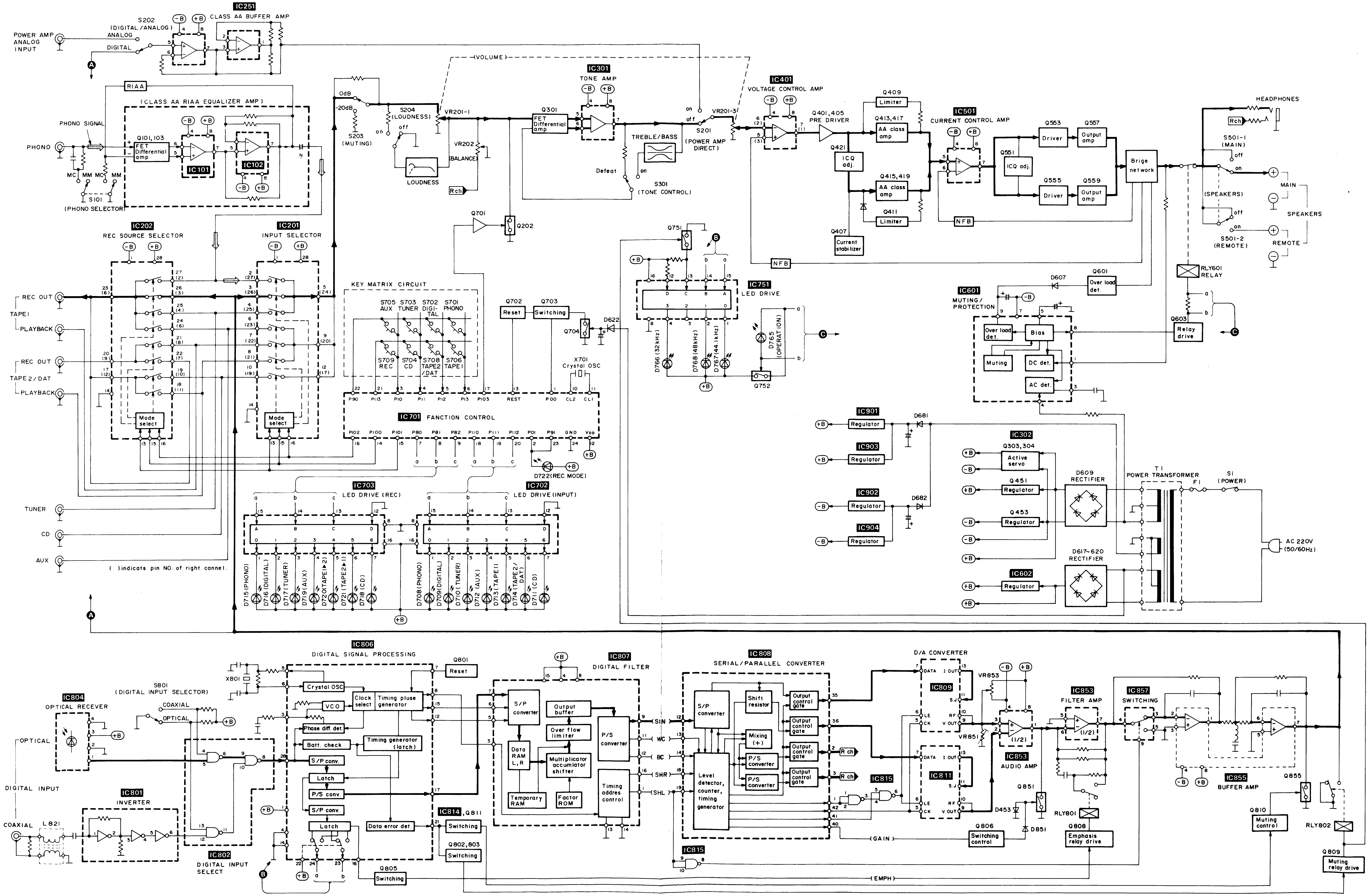
H INPUT/REC INDICATOR P.C.B.


R707
J17
R706
C706
IC703
J15
D704
Q701
R703
Q703
R705
C705
R704
Q704
Q702
D705
C708
C703
C704
C702
D706
R702
X701
IC701
IC702
J2
J16
6 5 4 3 2 1
R711
D709
D713 (TAPE 1 IND.)
D714
D712
D711
D710
D708
(DIGITAL IND.)
(TAPE 2/DAT IND.)
(AUX IND.)
(CD IND.)
(TUNER IND.)
R708
(PHONO IND.)
R709
INPUT SELECTOR IND.
D722
D716
D720
D721
D719
D718
D717
D715
(REC MODE IND.)
(DIGITAL IND.)
(TAPE 1▶2 IND.)
(TAPE 2▶1 IND.)
(AUX IND.)
(CD IND.)
(TUNER IND.)
(PHONO IND.)
RECORDING SELECTOR IND.

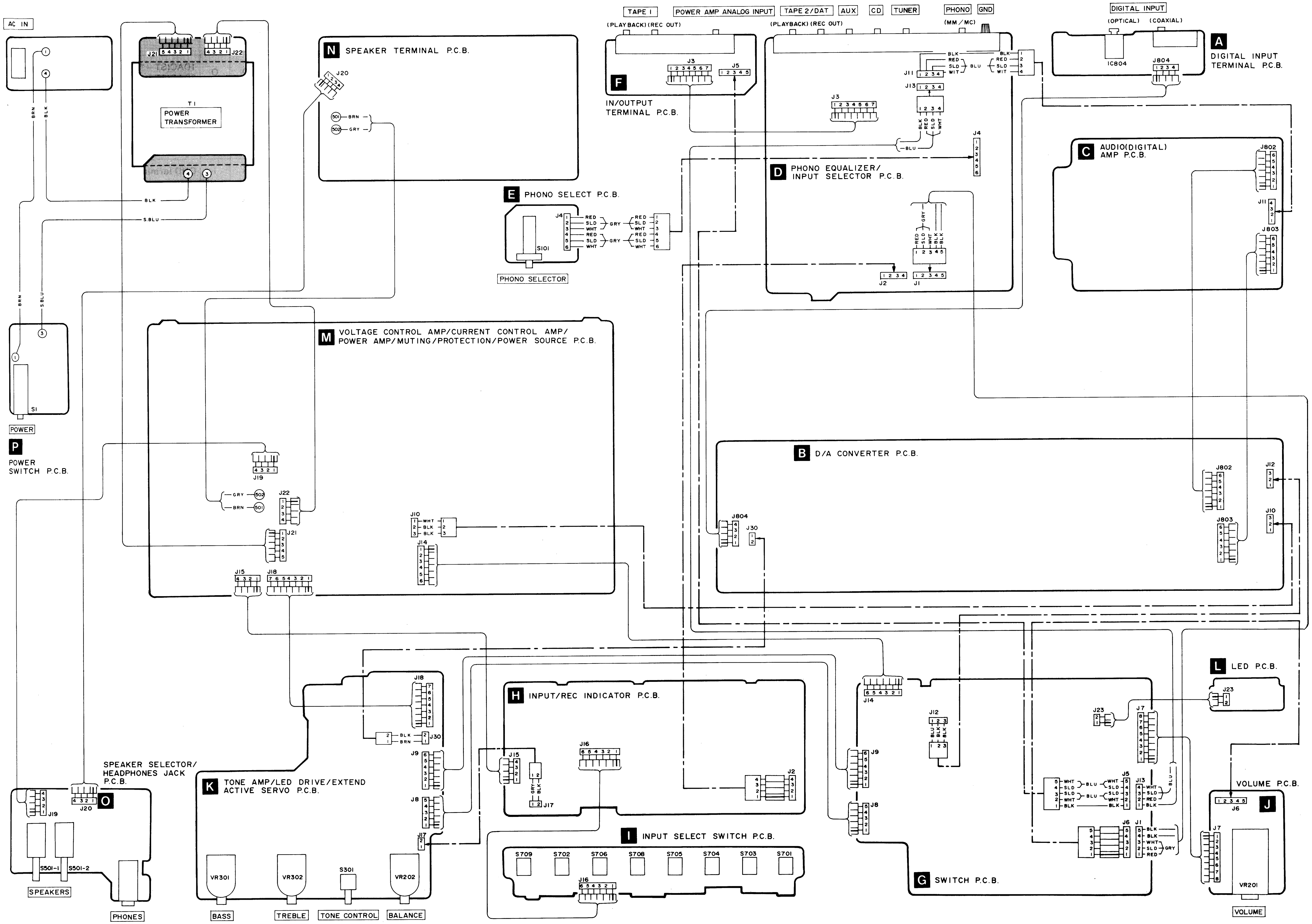
Power Source For (EK, XL, XA, PA, PE) areas.


For (EK, XL) areas
AC IN
S.BLU
BLK
J21
5 4 3 2 1
J22
4 3 2 1
T1
WHT
F1 T6.3A
F2 T3.15A
N
A
BRN
RED
YEL
BLU
ORG
BLK
RED
GRY
For (XA, PA, PE) areas
AC IN
AC OUTLET
(UNSWITCHED) (SWITCHED)
S.BLU
C1
S1
POWER
BRN
S2 VOLTAGE ADJ.
BLK
S.BLU

■ BLOCK DIAGRAM


IC251
CLASS AA BUFFER AMP
S202 (DIGITAL/ANALOG)
ANALOG
DIGITAL
POWER AMP ANALOG INPUT
RIAA
(CLASS AA RIAA EQUALIZER AMP)
PHONO SIGNAL
PHONO
Q101,103
FET Differential amp
IC101
IC102
MC MM MC MM
S101
(PHONO SELECTOR)
0dB
-20dB
S203 (MUTING)
S204 (LOUDNESS)
on off
LOUDNESS
VR201-1
VR202 (BALANCE)
Rch
(VOLUME)
Q301
FET Differential amp
IC301
TONE AMP
TREBLE/BASS
Defeat
S301 (TONE CONTROL)
on off
S201 (POWER AMP DIRECT)
VR201-3
IC401
VOLTAGE CONTROL AMP
Q401,405 PRE DRIVER
Q409 Limiter
Q413,417 AA class amp
Q421 ICQ adj.
Q415,419 AA class amp
Q411 Limiter
Q407 Current stabilizer
NFB
IC501
CURRENT CONTROL AMP
Q551 ICQ adj.
Q553 Driver
Q557 Output amp
Q555 Driver
Q559 Output amp
Brige network
HEADPHONES
Rch
S501-1 (MAIN)
off on
(SPEAKERS)
S501-2 (REMOTE)
MAIN
REMOTE
SPEAKERS
RLY601 RELAY
Q601 Over load det.
D607
IC601
MUTING/PROTECTION
Over load det.
Bias
Muting
DC det.
AC det.
Q603 Relay drive
IC202
REC SOURCE SELECTOR
IC201
INPUT SELECTOR
Mode select
REC OUT
TAPE1
PLAYBACK
REC OUT
TAPE2/DAT
PLAYBACK
TUNER
CD
AUX
( ) indicats pin NO. of right cannel.
Q701
Q202
KEY MATRIX CIRCUIT
S705 AUX
S703 TUNER
S702 DIGITAL
S701 PHONO
S709 REC
S704 CD
S708 TAPE2/DAT
S706 TAPE1
Q702 Reset
Q703 Switching
Q704
D622
X701 Crystal OSC
IC701 FANCTION CONTROL
P90 P113 P10 P11 P12 P13 P103 REST P00 CL2 CL1
P102 P100 P101 P80 P81 P82 P110 P111 P112 P01 P91 GND VDD
D722(REC MODE)
Q751
IC751
LED DRIVE
D766 (32kHz)
D768 (48kHz)
D767 (44.1kHz)
D765 (OPERATION)
Q752
IC703
LED DRIVE (REC)
D715 (PHONO)
D716 (DIGITAL)
D717 (TUNER)
D719 (AUX)
D720 (TAPE2)
D721 (TAPE1)
D718 (CD)
IC702
LED DRIVE (INPUT)
D708 (PHONO)
D709 (DIGITAL)
D710 (TUNER)
D712 (AUX)
D713 (TAPE1)
D714 (TAPE2/DAT)
D711 (CD)
IC901 Regulator
IC903 Regulator
IC902 Regulator
IC904 Regulator
D681
D682
IC302
Q303,304 Active servo
Q451 Regulator
Q453 Regulator
IC602 Regulator
D609 RECTIFIER
D617~620 RECTIFIER
T1 POWER TRANSFORMER
F1
S1 (POWER)
AC 220V (50/60Hz)
IC806
DIGITAL SIGNAL PROCESSING
X801
Crystal OSC
VCO
Clock select
Timing pluse generator
Phase diff. det.
Batt. check
Timing generator (latch)
S/P conv.
Latch
P/S conv.
S/P conv.
Latch
Data error det.
Q801 Reset
S801 (DIGITAL INPUT SELECTOR)
COAXIAL
OPTICAL
IC804
OPTICAL RECEVER
OPTICAL
DIGITAL INPUT
COAXIAL
L821
IC801
INVERTER
IC802
DIGITAL INPUT SELECT
IC814, Q811 Switching
Q802,803 Switching
Q805 Switching
IC807
DIGITAL FILTER
S/P converter
Output buffer
Over flow limiter
Data RAM L,R
Multiplicator accumulator shifter
Temporary RAM
Factor ROM
P/S converter
Timing addres control
SIN
WC
BC
SHR
SHL
IC808
SERIAL/PARALLEL CONVERTER
S/P converter
Shift resistor
Mixing (+)
P/S converter
P/S converter
Level detector, counter, timing generator
Output control gate
Output control gate
Output control gate
Output control gate
R ch
R ch
IC815
IC815
D/A CONVERTER
IC809
IC811
DATA I OUT
LE CK SJ RF V OUT
VR853
VR851
IC853 AUDIO AMP
(1/2)
IC853 FILTER AMP
(1/2)
IC857 SWITCHING
IC855 BUFFER AMP
Q851
D453
D851
Q806 Switching control
Q808 Emphasis relay drive
RLY801
Q855
Q810 Muting control
RLY802
Q809 Muting relay drive
(GAIN)
(EMPH)
A
B
C

■ WIRING CONNECTION DIAGRAM


AC IN
T1
POWER TRANSFORMER
J21
J22
BRN
BLK
S.BLU
N SPEAKER TERMINAL P.C.B.
J20
501 BRN
502 GRY
TAPE 1
POWER AMP ANALOG INPUT
TAPE 2/DAT
AUX
CD
TUNER
PHONO
GND
(PLAYBACK) (REC OUT)
(MM/MC)
F
IN/OUTPUT TERMINAL P.C.B.
J3
J5
J11
J13
J4
BLK
RED
SLD
WHT
BLU
D PHONO EQUALIZER/ INPUT SELECTOR P.C.B.
J2
J1
DIGITAL INPUT
(OPTICAL) (COAXIAL)
IC804
J804
A DIGITAL INPUT TERMINAL P.C.B.
C AUDIO(DIGITAL) AMP P.C.B.
J802
J11
J803
E PHONO SELECT P.C.B.
S101
PHONO SELECTOR
GRY
M VOLTAGE CONTROL AMP/CURRENT CONTROL AMP/ POWER AMP/MUTING/PROTECTION/POWER SOURCE P.C.B.
J19
J22
J21
J10
J14
J15
J18
S1
POWER
P POWER SWITCH P.C.B.
B D/A CONVERTER P.C.B.
J804
J30
J802
J803
J12
J10
SPEAKER SELECTOR/ HEADPHONES JACK P.C.B.
O
J19
J20
S501-1
S501-2
SPEAKERS
PHONES
K TONE AMP/LED DRIVE/EXTEND ACTIVE SERVO P.C.B.
J18
J30
J9
J8
J17
VR301
VR302
S301
VR202
BASS
TREBLE
TONE CONTROL
BALANCE
H INPUT/REC INDICATOR P.C.B.
J15
J16
J17
J2
I INPUT SELECT SWITCH P.C.B.
S709
S702
S706
S708
S705
S704
S703
S701
J16
J14
J12
J9
J8
J23
J7
J5
J13
J6
J1
G SWITCH P.C.B.
L LED P.C.B.
J23
VOLUME P.C.B.
J
J6
J7
VR201
VOLUME

■ FUNCTIONS OF IC TERMINALS

•IC806 (YM3623B) DIGITAL INTERFACE RECEPTION

(PU) terminals are "pulled up".

<table>
<tr><th>Pin No.</th><th>Terminal Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>VDD1</td><td>——</td><td>This is the power connection terminal (+5 V).</td></tr>
<tr><td>2</td><td>ADJ</td><td>I</td><td>This terminal is for the adjustment of the VCO oscillation frequency, but it is not used in this unit.</td></tr>
<tr><td>3</td><td>VCO</td><td>I/O</td><td>This is the external condenser terminal for the VCO circuitry.</td></tr>
<tr><td>4</td><td>VSS2</td><td>——</td><td>This is the ground connection terminal of the system.</td></tr>
<tr><td>5</td><td>XO</td><td>O</td><td>This is the output terminal for the crystal vibrator (16.9344 MHz).</td></tr>
<tr><td>6</td><td>XI</td><td>I</td><td>This is the input terminal for the crystal vibrator.</td></tr>
<tr><td>7</td><td>KMODE</td><td>I (PU)</td><td>At a high level...the PLL circuitry is activated when the DIN terminal receives an input signal.
Otherwise, the crystal vibrator is activated.
At a low level...the crystal vibrator is activated, regardless of the DIN terminal input.</td></tr>
<tr><td>8</td><td>ØA</td><td>O</td><td>This terminal outputs a 16.9344-MHz frequency when the crystal vibrator functions. When the PLL circuitry is activated, the frequency varies according to the speed of input data of the DIN terminal (fs=about 16.9344 MHz when it is 44.2 kHz).</td></tr>
<tr><td>9</td><td>ØB</td><td>O</td><td>The frequency of this terminal is divided into a third of that of terminal ØA when the crystal vibrator functions. When the PLL circuitry is activated, the frequency varies according to the speed of input data of the DIN terminal (fs=about 16.9344 when it is 44.2 kHz).</td></tr>
<tr><td>10</td><td>T1</td><td>I (PU)</td><td>This is the input terminal for checking the internal circuitry.</td></tr>
<tr><td>11</td><td>T2</td><td>I (PU)</td><td>This is the input terminal for checking the internal circuitry.</td></tr>
<tr><td>12</td><td>BCO</td><td>O</td><td>Used to output the time-clock signal from the DO terminal.</td></tr>
<tr><td>13</td><td>SYNC</td><td>O</td><td>Used to output the synchronization signal.</td></tr>
<tr><td>14</td><td>VSS1</td><td>O</td><td>This is the ground connection terminal of the system (+0 V).</td></tr>
<tr><td>15</td><td>L/R</td><td>O</td><td>At a high level...data on the left channel is output from the DO terminal.
At a low level...data on the right channel is output from the DO terminal.</td></tr>
<tr><td>16</td><td>DEF</td><td>O</td><td>At a high level...input data is emphasized.
At a low level...input data is not emphasized.</td></tr>
<tr><td>17</td><td>DO</td><td>O</td><td>Outputs 16-bit data.</td></tr>
<tr><td>18</td><td>WC</td><td>O</td><td>This is the terminal for checking data output to the DO terminal.</td></tr>
<tr><td>19</td><td>DIGR</td><td>O</td><td>This terminal outputs the signal for the right channel.</td></tr>
<tr><td>20</td><td>DIGL</td><td>O</td><td>This terminal outputs the signal for the left channel.</td></tr>
<tr><td>21</td><td>ERR</td><td>O</td><td>Error detection terminal. H=Error is found during parity check L=No errors</td></tr>
<tr><td>22</td><td>SEL</td><td>I (PU)</td><td rowspan="3">
<table>
<tr><th>Input</th><th colspan="2">Output</th><th colspan="2">Output</th></tr>
<tr><th>SEL</th><th>S1</th><th>Function</th><th>S2</th><th>Function</th></tr>
<tr><td rowspan="2">L</td><td>L</td><td>Copying is not possible</td><td>L</td><td>DC (except DAT)</td></tr>
<tr><td>H</td><td>Copying is possible</td><td>H</td><td>DAT</td></tr>
<tr><td rowspan="4">H</td><td>L</td><td></td><td>L</td><td>The sampling frequency of the DIN input signal is 44.1 kHz.</td></tr>
<tr><td>L</td><td></td><td>H</td><td>48 kHz</td></tr>
<tr><td>H</td><td></td><td>H</td><td>32 kHz</td></tr>
<tr><td>H</td><td></td><td>L</td><td>——</td></tr>
</table>
</td></tr>
<tr><td>23</td><td>S1</td><td>O</td></tr>
<tr><td>24</td><td>S2</td><td>O</td></tr>
<tr><td>25</td><td>SCK</td><td>O</td><td>Terminal for the clock-signal of the sub code output.</td></tr>
<tr><td>26</td><td>SSYNC</td><td>O</td><td>For the signal of the sub code.</td></tr>
<tr><td>27</td><td>SDO</td><td>O</td><td>For the output of sub code data.</td></tr>
<tr><td>28</td><td>DIN</td><td>I (PU)</td><td>For the input of data.</td></tr>
</table>

• YM3404B (Digital filter)

Pin No.	Mark	I/O	Function
1	SHL	O	1DAC(ST="L"): Lch Deglitcher signal 2DAC(ST="H"): L/Rch Deglitcher signal
2	X0	O	Clock output
3	X1	I	Clock input
4	VDD2	I	Power supply (connected to +5V)
5	BCI	I	Bit clock input (input data)
6	SDSY	I	R/L signal
7	SDI	I	Data input
8	VDD1	I	Power supply (connected to +5V)
9	DLO	O	1DAC(ST="L"): L/Rch data output terminal 2DAC(ST="H"): Lch data output terminal
10	RDO	O	Rch data output (not connected)
11	WCO	O	Output data word clock
12	BCO	O	Bit clock output (output data)
13	VSS	I	GND terminal
14	ST	I	1DAC/2DAC selector terminal
15	FEN	I	System clock selector terminal
16	SHR	O	1DAC(SP="L"): Rch deglitch signal

• MN53010PEH (Serial/Parallel converter)

Pin No.	Mark	I/O	Function			
1	WCO	O	Output data word clock (DALO,DBLO,DARO,DBRO)			
2	DARO	O	Rch data output, (+)terminal			
3	DBRO	O	Rch data output, (-)terminal			
4	RST	O	Reset output data to "0"			
5	VDD	I	Power supply (connected to +5V)			
6	VSS	I	GND terminal			
7	F2DAC	I	"H": 2DAC 18-bit "L": 2DAC 17-bit			
8	FLOAT	I	"H": 4DAC 18-bit "L": 4DAC 17-bit			
9	PHASE	I	"H": Phase inversion "L": Normal mode			
10	LRCK	I	Inverter input			
11	LRCK	O	LRCK signal inverter output			
12	SIN	I	Data input			
13	WCI	I	Input data word clock			
14	BCI	I	Input data bit clock			
15	VSS	I	GND terminal			
16	NC	---	Not connected			
17	VDD	I	Power supply (connected to +5V)			
18	SHR	I	Rch Deglitcher signal			
18	SHR	I	Rch Deglitcher signal			
19	SHL	I	Lch Deglitcher signal			
20 31	NC	---	Not connected			
			NORMAL MODE delay: 180ms	TEST MODE delay: 1.45ms	TEST MODE delay: 0.73ms	TEST MODE delay: 0ms
32	NTEST1	I	H	L	H	L
33	NTEST2	I	H	H	L	L
34	NTEST3	I	"H": Normal mode "L": Reset			
35	DALO	O	Lch data output, (+)terminal			
36	DBLO	O	Rch data output, (-)terminal			
37	VDD	I	Power supply (connected to +5V)			
38	VSS	I	GND terminal			
39	NC	---	Not connected			
40	GAIN	O	Gain selector signal H: 0~-12dB L: below -12dB			
41	SH	O	Deglitch signal H: Sample L: Hold			
42	BCO	O	Output data bit clock			

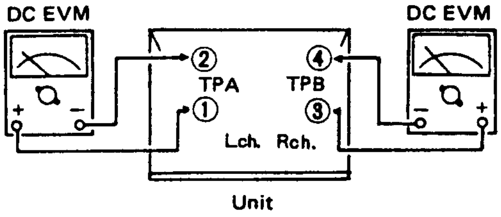
■ MEASURMENTS AND ADJUSTMENTS

Control positions and equipment used.

- ●Volume knob................∞ (Minimum)
- ●Main speaker selector..................off
- ●Remote speaker selector................off
- ●DC electronic voltmeter(EVM)

VOLTAGE CONTROL(V)AMP.IDLING(ICQ) ADJUSTMENT

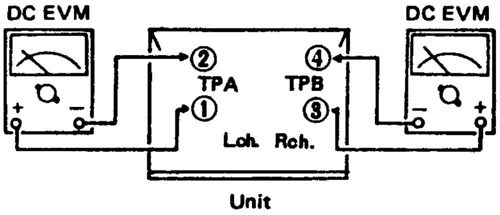
1. Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
2. Completely turn the (V) amp. adjusting volumes (**VR401**, **VR402**) counter-clockwise.
3. Turn ON the set when it is cold, and immediately adjust **VR401** and **VR402** so that the voltage is **25mV**.
   Also, check that the voltage is **25 ~ 30mV** (standard: **27mV**) after lapse of **10 ~ 15 minutes.** (Below **30mV** after lapse of **20 min.)**



TPA=TP401, TPB=TP402

CURRENT DRIVE(C)AMP.IDLING(ICQ)ADJUSTMENT

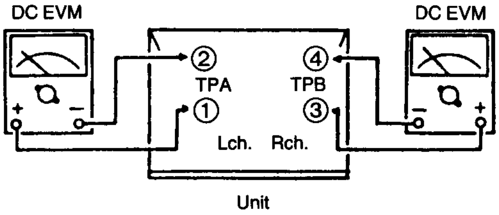
1. Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
2. Completely turn the (C) amp. adjusting volumes (**VR551**, **VR552**) counter-clockwise.
3. Turn ON the set when it is cold, and after the adjustment of the (V) amp. ICQ, adjust **VR551** and **VR552** so that the voltage is **3mV.**
   Also, check that the voltage is **4 ~ 7mV** (standard: **5mV**) after lapse of **10 ~ 15 minutes.** (Below **10mV** after lapse of **20 min.)**



TPA=Z551, TPB=Z552

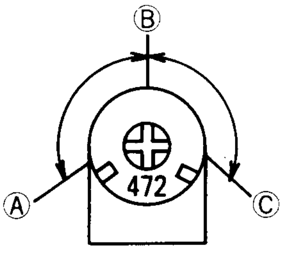
DA CONVERTER DC OFFSET ADJUSTMENT

1. Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)
2. Adjust **VR853** and **VR854** so that the voltage are less than **1 mV** in **3 mV** range.



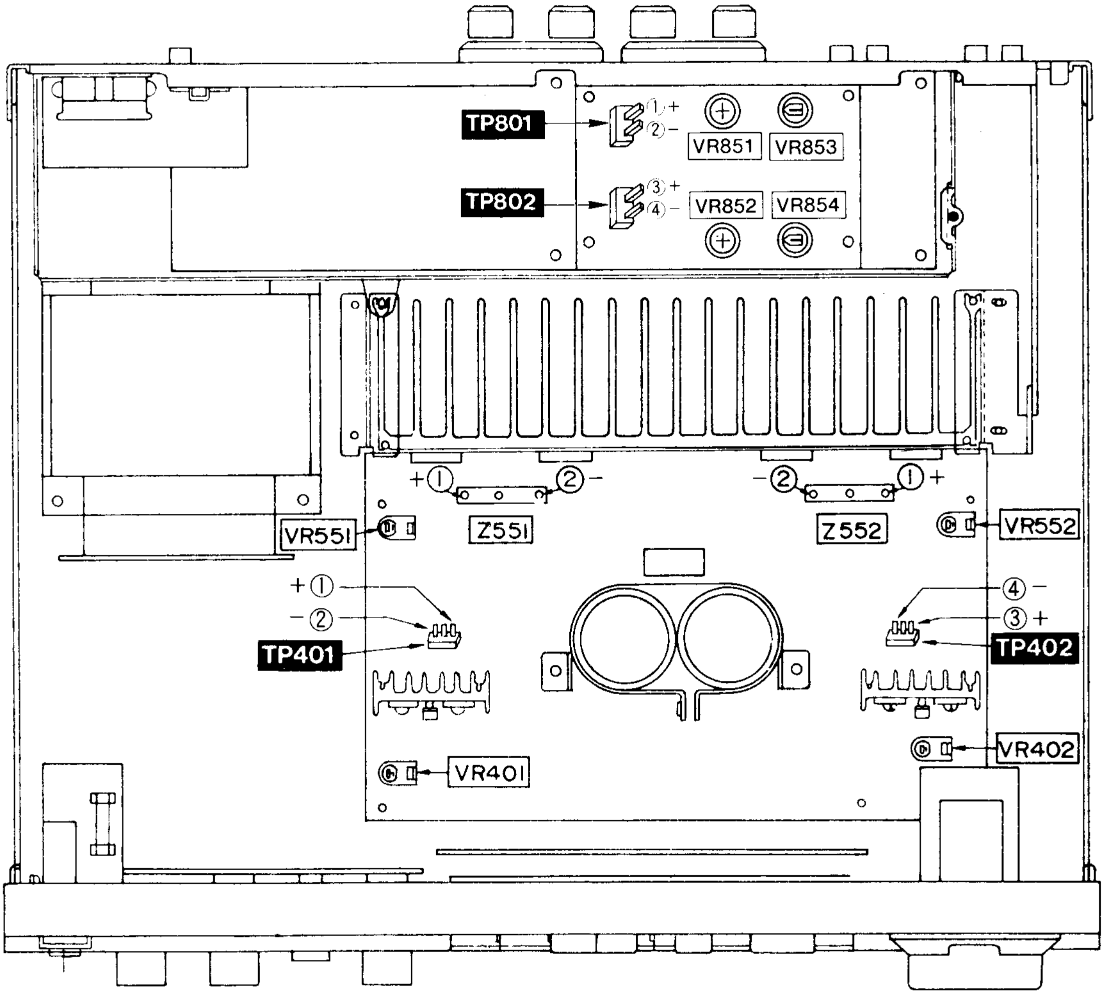
TPA=TP801, TPB=TP802

Note:
After replacing or repairing IC809-812 (Part No. PCM56P-J), rotate VR851 and VR852 fully clockwise (to point C) and counterclockwise (to point A). Afterwards, set the middle points between A and C to their center positions (B).



VR851 and VR852

•Adjustment points


TP801
①+
②−
VR851
VR853
TP802
③+
④−
VR852
VR854
+①
②−
−②
①+
VR551
Z551
Z552
VR552
+①
−②
TP401
④−
③+
TP402
VR401
VR402

•Test point

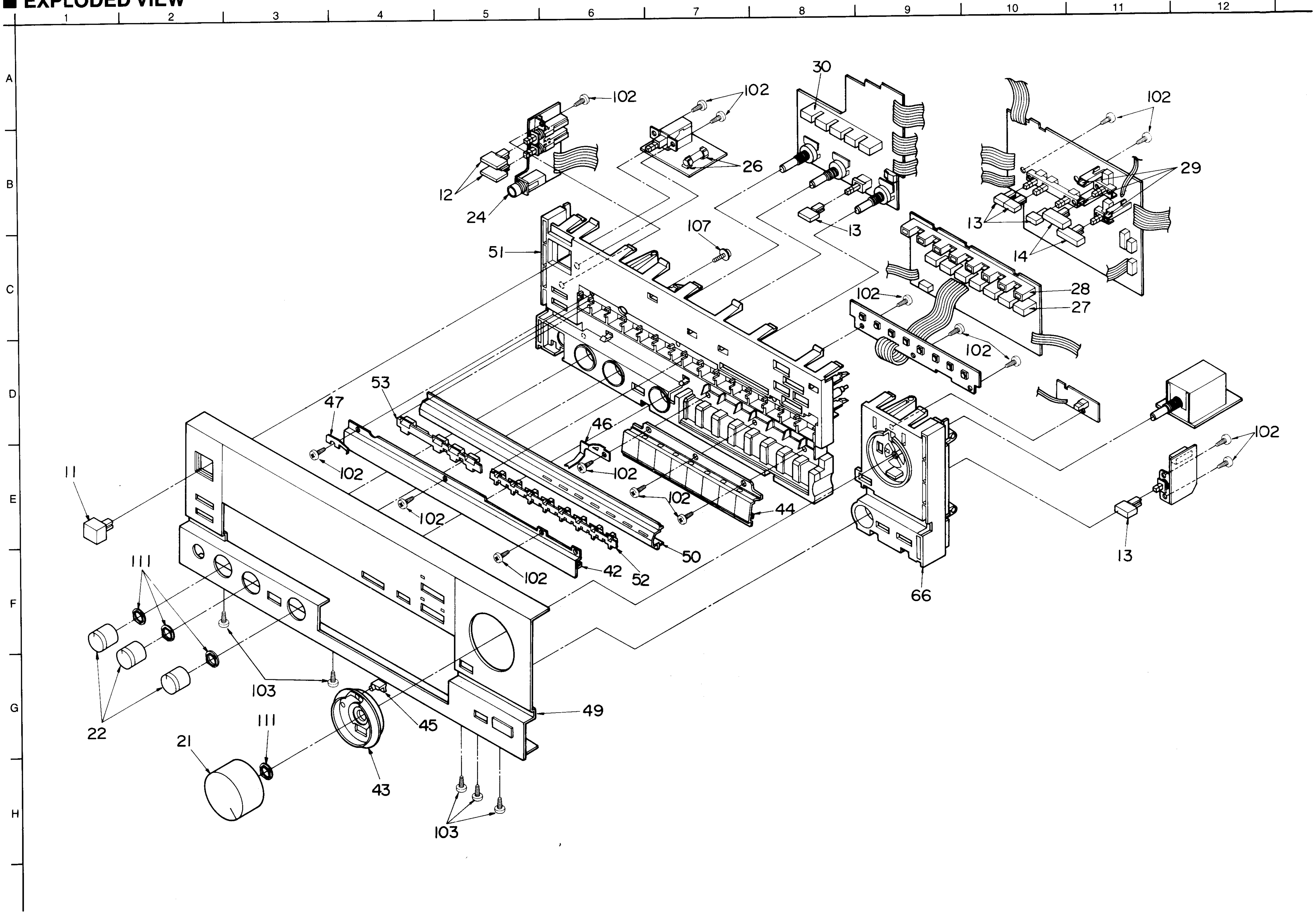
TP401	L ch Voltage control amp I_{CQ} adj.
TP402	R ch Voltage control amp I_{CQ} adj.
Z551	L ch Current drive amp I_{CQ} adj.
Z552	R ch Current drive amp I_{CQ} adj.
TP801	Lch DA Converter DC offset adj.
TP802	Rch DA Converter DC offset adj.

•Adjustment VR

VR401	L ch Voltage control amp I_{CQ} adj.
VR402	R ch Voltage control amp I_{CQ} adj.
VR551	L ch Current drive amp I_{CQ} adj.
VR552	R ch Current drive amp I_{CQ} adj.
VR851	L ch DA Converter distortion adj.
VR852	R ch DA Converter distortion adj.
VR853	Lch DA Converter DC offset adj.
VR854	Rch DA Converter DC offset adj.

Note:
Refer to the Supplement (Order No. HAD8803100S9) for the information about how to adjust the DA Converter DC offset, DA Converter distortion and check the optical terminal.

■ EXPLODED VIEW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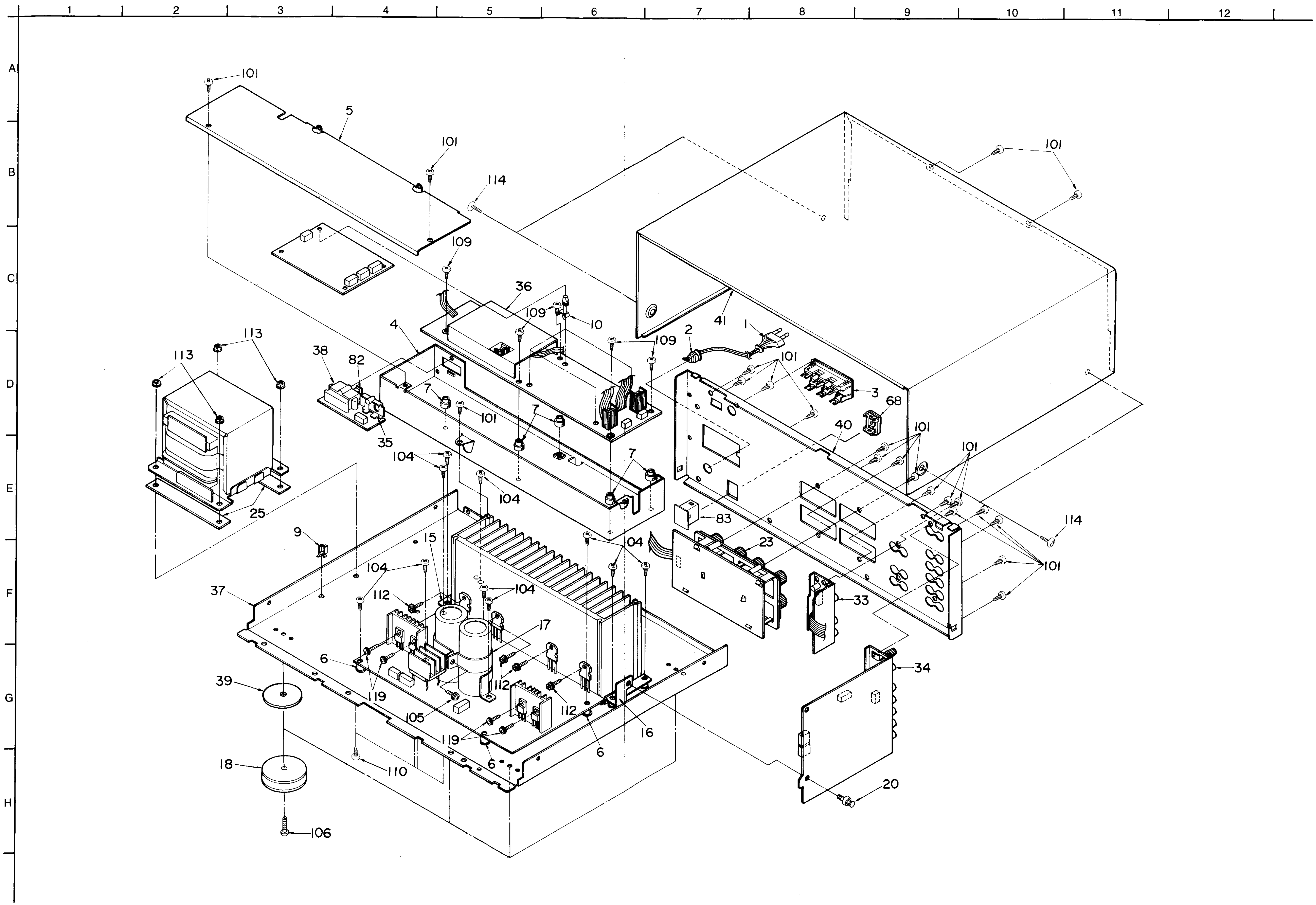
■ EXPLODED VIEW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106

■ REPLACEMENT PARTS LIST

Notes : ∗ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
∗ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

•CABINET AND CHASSIS PARTS LIST (Refer to 37~40 page)

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1 ⚠	QFC1205M	POWER CORD
(EK)		
1 ⚠	RJA52Y	POWER CORD
(PA, PE)		
1 ⚠	SJA111	POWER CORD
(XA)		
1 ⚠	SJA190	POWER CORD
(XL)		
2	SHR127	SPACER, POWER CORD
(XL, XA, PA)		
(PE)		
2	SHR129	BUSHING
(EK)		
3 ⚠	SJS601-3	SOCKET
(XA, PA, PE)		
4	SMC1276	SHIELD COVER
5	SMC1277	SHIELD COVER
6	SHE181	HOLDER
7	SHE170-1	SPACER
9	SHR9814	PLASTIC SPACER
10	SHR9813	PLASTIC SPACER
11	SBC666-5	BUTTON, POWER
12	SBC723-1	BUTTON, SPEAKER
13	SBC993	BUTTON, TONE
14	SBC992	BUTTON, POWER AMP
15	SUW3036	BRACKET
16	SUW3101	ANGLE
17	SMN2061	ANGLE
18	SKL306	INSULATER
19	SHR301	CLAMPER
20	SHR415	LOCK PIN
21	SBN1230-1	KNOB, MAIN VOL
22	SBN1218-1	KNOB, TONE
23	SJF4817	TERMINAL BOARD
24	SJJD17B	JACK
25	SHG6352-3	RUBBER SPACER
26	SJT390	FUSE HOLDER
(E, EF, EI, EB)		
(EH, EG)		
27	LN074373P	DIODE, GAASP
28	LN088374P	DIODE, GAASP
29	LN018397PH	LED ASS'Y
30	LN041373P1	LED ASS'Y
33	SJF3062-18	TERMINAL
34	SJF3062-6	TERMINAL
35	SJF3107-1N	TERMINAL PLATE
36	SMC1279	SHIELD PLATE
37	SKU11850-1	BOTTOM BOARD
38	SGX7912	HOLDER
39	SHG6405	SPACER
40	SGPUV90D-KEF	REAR PANEL
(EF, EI, EB)		
(EH)		
40	SGPUV90D-KXL	REAR PANEL
(XL)		
40	SGP7230-1A	REAR PANEL
(E)		
40	SGP7230-1B	REAR PANEL
(EG)		
40	SGP7230-2A	REAR PANEL
(EK)		
40	SGP7230-3A	REAR PANEL
(XA, PA, PE)		
41	SKC2011K991	CABINET
42	SGW490T03A	PANEL
43	SGX7941	ORNAMENT
44	SBC991-2	BUTTON, SELECTOR
45	SGL250	ORNAMENT
46	SUS873	SPRING
47	SUS839	COIL SPRING
49	SGWUV90DKE1	FRONT PANEL
50	SGWUV90DKE2	ORNAMENT
51	SGXUV90D-KE1	GRILLE ASS'Y
52	SGLUV100DKN1	ORNAMENT
53	SGLUV100DKN2	ORNAMENT
66	SGXUV90D-KE3	GRILLE ASS'Y
68	SJS9231A	AC INLET COVER
(E, EF, EI, EB)		
(EH, EG)		
70	SJT30243-V	CONNECTOR(2P)
70	SJT30340LX-V	CONNECTOR(3P)
70	SJT30440LX-V	CONNECTOR(4P)
70	SJT30543-V	CONNECTOR(5P)
70	SJT30640LX-V	CONNECTOR(6P)
70	SJT30740LX-V	CONNECTOR(7P)
71	SJT3213	CONNECTOR(2P)
71	SJT3319	CONNECTOR(3P)
71	SJT3415	CONNECTOR(4P)
71	SJT3511	CONNECTOR(5P)
71	SJT3611	CONNECTOR(6P)
72	SJT3215	CONNECTOR(2P)
72	SJT3417	TERMINAL(4P)
72	SJT3513	CONNECTOR(5P)
73	SJS5331	SOCKET(3P)
73	SJS5425	SOCKET(4P)
73	SJS5523	SOCKET(5P)
73	SJS5629	CONNECTOR(6P)
74	SJT783	CONTACT
75	SJS5217	SOCKET(2P)
75	SJS5337	CONNECTOR(3P)
75	SJS5431	SOCKET(4P)
75	SJS5529	SOCKET(5P)
75	SJS5633	CONNECTOR(6P)
76	SJT785	CONTACT
82	VJA7135	CAP
83 ⚠	SJS9231-1B	AC INLET
(E, EF, EI, EB)		
(EH, EG)		
SCREWS.WASHERS AND NUTS		
101	XTBS3+8JFZ1	SCREW
102	XTB3+8G	SCREW
103	XTBS3+10JFZ1	TAPPING SCREW
104	XTV3+20F	TAPPING SCREW
105	XYN3+F14	TAPPING SCREW
106	XTW3+8T	SCREW
107	XTWS3+10Q	SCREW
108	XTB3+12JFZ	SCREW
109	XTBS3+12F1	SCREW
110	XTB4+10F	TAPPING SCREW
111	SNE4021	NUT
112	SNE2117-1	SCREW
113	SNE4065	BRACKET
114	SNE2095-5	SCREW
118	XTBS3+8JFZ1	SCREW
119	XTW3+8T	SCREW

•ELECTRIC PARTS LIST

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	M5218P	I.C. EQ AMP
IC102	SVIUPC4570C	I.C. EQ AMP
IC201	TC9163N	I.C. ANALOG FUN
IC202	TC9164N	I.C. ANALOG FUN
IC251	M5238P	I.C. BUFFER AMP
IC252	M5238P	I.C. BUFFER AMP
IC301	M5218P	I.C. TONE AMP
IC302	M5218P	I.C. EXTEND ACTIVE
IC401	SVIUPC4570C	I.C. VOLTAGE AMP
IC501	M5219P	I.C. FET DIFFRENTIAL
IC502	M5219P	I.C. FET DIFFRENTIAL
IC601	AN7073	I.C. PROTECTION
IC602	AN78M05	I.C. RERULATOR
IC701	UPD7566CS089	IC. ANALOG FUN
IC702	DN74LS145	I.C. LED DRIVER
IC703	DN74LS145	I.C. LED DRIVER
IC751	DN74LS145	I.C. LED DRIVER
IC801	MN74HCU04	I.C. DIGITAL INPUT
IC802	MN74HC00	I.C. DIGITAL INPUT
IC804	SVITORX172	I.C. OPTICAL RE.
IC806	YM3623B	I.C. DIGITAL SIG.
IC807	YM3404B	I.C. DIGITAL FILTER
IC808	MN53010PEH	I.C. SERIAL/PARA
IC809	PCM56P-J	I.C. D/A CONVERTER
IC810	PCM56P-J	I.C. D/A CONVERTER
IC811	PCM56P-J	I.C. D/A CONVERTER
IC812	PCM56P-J	I.C. D/A CONVERTER
IC814	MN123Z	I.C.. FLIP-FLOP
IC853	SVIUPC4570C	I.C. AUDIO AMP
IC854	SVIUPC4570C	I.C. AUDIO AMP
IC855	SVIUPC4570C	I.C. BUFFER
IC856	SVIUPC4570C	I.C. BUFFER
IC857	SVIUPD4053BC	I.C. SWITCHING
IC858	SVIUPD4053BC	I.C. SWITCHING
IC901	AN78M05	I.C. REGULATOR
IC902	AN79N05	I.C. REGULATOR
IC903	M5F78M08L	I.C. REGULATOR
IC904	M5F79M08L	I.C. REGULATOR
TRANSISTORS		
Q101	2SK369-GR	TRANSISTOR
Q102	2SK369-GR	TRANSISTOR
Q103	2SK369-GR	TRANSISTOR
Q104	2SK369-GR	TRANSISTOR
Q201	2SK301	TRANSISTOR
Q202	2SK301	TRANSISTOR
Q301	2SK389BG	TRANSISTOR
Q302	2SK389BG	TRANSISTOR
Q303	2SC3944AQRS	TRANSISTOR
Q304	2SA1535AQRS	TRANSISTOR
Q401	2SC2631-Q	TRANSISTOR
Q402	2SC2631-Q	TRANSISTOR
Q405	2SA1123R	TRANSISTOR
Q406	2SA1123R	TRANSISTOR
Q407	2SC2631-Q	TRANSISTOR
Q408	2SC2631-Q	TRANSISTOR
Q409	2SC3311A-Q	TRANSISTOR
Q410	2SC3311A-Q	TRANSISTOR
Q411	2SA1309A-R	TRANSISTOR
Q412	2SA1309A-R	TRANSISTOR
Q413	2SC2631-Q	TRANSISTOR
Q414	2SC2631-Q	TRANSISTOR
Q415	2SA1123R	TRANSISTOR
Q416	2SA1123R	TRANSISTOR
Q417	2SC3944AQRS	TRANSISTOR
Q418	2SC3944AQRS	TRANSISTOR
Q419	2SA1535AQRS	TRANSISTOR
Q420	2SA1535AQRS	TRANSISTOR
Q421	2SC1815BG	TRANSISTOR
Q422	2SC1815BG	TRANSISTOR
Q451	2SC1384A-R	TRANSISTOR
Q453	2SA684-RNC	TRANSISTOR
Q501	2SC2631-Q	TRANSISTOR
Q502	2SC2631-Q	TRANSISTOR
Q503	2SA1123R	TRANSISTOR
Q504	2SA1123R	TRANSISTOR
Q505	2SA1123R	TRANSISTOR
Q506	2SA1123R	TRANSISTOR
Q507	2SC2631-Q	TRANSISTOR
Q508	2SC2631-Q	TRANSISTOR
Q551	2SC1815BG	TRANSISTOR
Q552	2SC1815BG	TRANSISTOR
Q553	2SC3944AQRS	TRANSISTOR
Q554	2SC3944AQRS	TRANSISTOR
Q555	2SA1535AQRS	TRANSISTOR
Q556	2SA1535AQRS	TRANSISTOR
Q557	2SC3281R	TRANSISTOR
Q558	2SC3281R	TRANSISTOR
Q559	2SA1302R	TRANSISTOR
Q560	2SA1302R	TRANSISTOR
Q601	2SB1036R	TRANSISTOR
Q602	2SB1036R	TRANSISTOR
Q603	2SA992E	TRANSISTOR
Q701	2SA1309A-R	TRANSISTOR
Q702	UN4211	TRANSISTOR
Q703	2SC3311A-Q	TRANSISTOR
Q704	2SC3311A-Q	TRANSISTOR
Q751	UN4211	TRANSISTOR
Q752	2SD1512R	TRANSISTOR
Q801	UN4215	TRANSISTOR
Q802	2SA1309AQS	TRANSISTOR
Q803	UN4211	TRANSISTOR
Q805	UN4211	TRANSISTOR
Q806	UN4111	TRANSISTOR
Q808	UN4111	TRANSISTOR
Q809	UN4111	TRANSISTOR
Q810	UN4111	TRANSISTOR
Q811	UN4211	TRANSISTOR
Q851	2SD1330R	TRANSISTOR
Q852	2SD1330R	TRANSISTOR
Q853	2SD1330R	TRANSISTOR
Q854	2SD1330R	TRANSISTOR
Q855	2SD1330R	TRANSISTOR
Q856	2SD1330R	TRANSISTOR
DIODES		
D101	MA165	DIODE
D102	MA165	DIODE
D201	20A90	DIODE
D301	MA4180-M	DIODE
D302	MA4180-M	DIODE
D303	MA165	DIODE
D401	MA165	DIODE
D402	MA165	DIODE
D403	MA29WA	DIODE
D413	MA165	DIODE
D414	MA165	DIODE
D415	MA165	DIODE
D416	MA165	DIODE
D451	MA4180-M	DIODE
D453	MA4180-M	DIODE
D501	MA4082M	DIODE
D502	MA4082M	DIODE
D503	MA4082M	DIODE
D504	MA4082M	DIODE
D505	MA165	DIODE
D506	MA165	DIODE
D507	MA165	DIODE
D508	MA165	DIODE
D601	MA165	DIODE
D602	MA165	DIODE
D603	MA4180-M	DIODE
D604	MA165	DIODE

Ref. No.	Part No.	Description
D607	MA167	DIODE
D609	SVDS10VB20F	RECTIFIER
D617 ⚠	SVD1SR35200A	RECTIFIER
D618 ⚠	SVD1SR35200A	RECTIFIER
D619 ⚠	SVD1SR35200A	RECTIFIER
D620 ⚠	SVD1SR35200A	RECTIFIER
D622	MA165	DIODE
D681 ⚠	SVD1SR35200A	RECTIFIER
D682 ⚠	SVD1SR35200A	RECTIFIER
D704	MA165	DIODE
D705	MA165	DIODE
D706	MA165	DIODE
D708	LN074373P	DIODE, GAASP
D709	LN074373P	DIODE, GAASP
D710	LN074373P	DIODE, GAASP
D711	LN074373P	DIODE, GAASP
D712	LN074373P	DIODE, GAASP
D713	LN074373P	DIODE, GAASP
D714	LN074373P	DIODE, GAASP
D715	LN088374P	DIODE, GAASP
D716	LN088374P	DIODE, GAASP
D717	LN088374P	DIODE, GAASP
D718	LN088374P	DIODE, GAASP
D719	LN088374P	DIODE, GAASP
D720	LN088374P	DIODE, GAASP
D721	LN088374P	DIODE, GAASP
D722	LN088374P	DIODE, GAASP
D751	MA4047M	DIODE
D752	MA165	DIODE
D753	MA165	DIODE
D754	MA4030M	DIODE
D761	LN846RP-C	L.E.D
D762	LN018397PH	LED ASS'Y
D763	LN018397PH	LED ASS'Y
D764	LN018397PH	LED ASS'Y
D765	LN041373P1	LED ASS'Y
D766	LN041373P1	LED ASS'Y
D767	LN041373P1	LED ASS'Y
D768	LN041373P1	LED ASS'Y
D801	MA165	DIODE
D802	MA29WA	DIODE
D803	MA165	DIODE
D804	MA165	DIODE
D805	MA4240H	DIODE
D822	MA165	DIODE
D823	MA165	DIODE
D824	MA165	DIODE
D851	MA165	DIODE
D852	MA165	DIODE
D903	MA4051-M	DIODE
D904	MA4051-M	DIODE
D905	MA165	DIODE
D906	MA165	DIODE
VARIABLE RESISTORS		
VR201	EWIPRA028231	V.R. MAIN
VR202	EWHFDA014G15	V.R. BALANCE
VR301	EWC2XA000C15	V.R. TREBLE
VR302	EWC2XA000C15	V.R. BASS
VR401	EVNK6AA00B52	V.R. V-AMP ICQ(L)
VR402	EVNK6AA00B52	V.R. V-AMP ICQ(R)
VR551	EVNK6AA00B52	V.R. I-AMP ICQ(L)
VR552	EVNK6AA00B52	V.R. I-AMP ICQ(R)
VR851	QVNB3A00B472	V.R. D/A CON.(L)
VR852	QVNB3A00B472	V.R. D/A CON.(R)
THERMISTORS AND VARISTORS		
TH401	ERTD2WHL104S	THERMISTOR
TH402	ERTD2WHL104S	THERMISTOR
TH551	ERTD2WHL104S	THERMISTOR
TH552	ERTD2WHL104S	THERMISTOR
COILS AND TRANSFORMERS		
L1 ⚠	SLQZ650MH49	CHOKE COIL
(EG, EI)		
L5	SLQY07G-50	COIL
L6	SLQY07G-50	COIL
L7	SLQY07G-50	COIL

Ref. No.	Part No.	Description
L8	SLQY07G-50	COIL
L101	SLQW471-1P3	CHOKE COIL
(EG, EI)		
L102	SLQW471-1P3	CHOKE COIL
(EG, EI)		
L103	SLQW471-1P3	CHOKE COIL
(EG, EI)		
L104	SLQW471-1P3	CHOKE COIL
(EG, EI)		
L551	SLQY07G-50	COIL
L552	SLQY07G-50	COIL
L553	SLQY18G-20	COIL
L554	SLQY18G-20	COIL
L555	SLQY07G-50	COIL
L556	SLQY07G-50	COIL
L557	SLQY07G-50	COIL
L558	SLQY07G-50	COIL
L802	ELEPK470KA	COIL FILTER
L803	ELEPK4R7KA	COIL
L804	ELEPK4R7KA	COIL
L805	ELEPK4R7KA	COIL
L806	ELEPK4R7KA	COIL
L807	ELEPK4R7KA	COIL
L806	ELEPK470KA	COIL FILTER
L809	ELEPK470KA	COIL FILTER
L811	ELEPK330KA	CHOCK COIL
L814	ELEPK330KA	CHOCK COIL
L815	ELEPK330KA	CHOCK COIL
L816	ELEPK330KA	CHOCK COIL
L821	SLQB20G-1P	CHOCK COIL
L851	ELEPK101KA	CHOKE COIL
L852	ELEPK101KA	CHOKE COIL
L853	ECEPH390KA	CHOKE COIL
L854	ECEPH390KA	CHOKE COIL
L855	ELEPK330KA	CHOCK COIL
L856	ECEPH390KA	CHOKE COIL
T1 ⚠	SLT5Q152	POWER TRANSFORMER
(E, EF, EI, EB)		
(EH)		
T1 ⚠	SLT5Q153	POWER TRANSFORMER
(EK, XL, XA)		
(PA, PE)		
COMPONENT COMBINATIONS		
Z551	ERF3GBKR22N	WIRE WOUND RESISTOR
Z552	ERF3GBKR22N	WIRE WOUND RESISTOR
Z801	EXCEMT103C	FILTER
Z802	EXCEMT103C	FILTER
Z803	EXCEMT103C	FILTER
Z804	EXCEMT103C	FILTER
Z805	EXCEMT103C	FILTER
Z806	EXCEMT103C	FILTER
Z807	EXCEMT103C	FILTER
Z808	EXCEMT103C	FILTER
Z851	EXCEMT103C	FILTER
Z852	EXCEMT103C	FILTER
OSCILLATORS		
X701	SVFCSB400P-M	CERAMIC FILTER
X801	SVQAT1923	CRYSTAL OSCILLATOR
FUSES		
F1 ⚠	XBA2C31TB0	FUSE 250V, T3.15A
(E, EF, EI, EB)		
(EH, EG)		
F1 ⚠	XBA2C63TB0	FUSE 250V, T6.3A
(EK, XL, XA)		
(PA, PE)		
F2 ⚠	XBA2C31TB0	FUSE 250V, T3.15A
(EK, XL, XA)		
(PA, PE)		
SWITCHES		
S1 ⚠	SSH1201	SW. POWER
S2 ⚠	ESE37263	SW. VOLTAGE SELECTOR
(EK, XL, XA)		
(PA, PE)		
S101	SSH1233	SW. MM/MC CHANGE

Ref. No.	Part No.	Description
S201	SSH1223	SW. DIRECT CHANGE
S202	SSH1223	SW. POWER AMP DIRECT
S203	SSH3711	SW. MUTING
S204	SSH3711	SW. DIGITAL SEL
S301	SSH1232	SW. TONE
S501-1	SSH2124	SW. SPEAKER
S501-2	SSH2124	SW. SPEAKER
S701	SSG13	SW. INPUT
S702	SSG13	SW. INPUT
S703	SSG13	SW. INPUT

Ref. No.	Part No.	Description
S704	SSG13	SW. INPUT
S705	SSG13	SW. INPUT
S706	SSG13	SW. INPUT
S708	SSG13	SW. INPUT
S709	SSG13	SW. INPUT
S801	SSH3711	SW. LOUDNESS
RELAYS		
RLY601	SSY126	RELAY
RLY801	SFDYG5A237P	RELAY
RLY802	SFDYG5A237P	RELAY

•PACKING PARTS LIST

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	SPG6169	PACKING CASE
(E, EI, EB, EH)		
(EG, EK, XA)		
(PA, PE)		
P1	SPG6171	PACKING CASE
(EF)		
P1	SPG6172	PACKING CASE
(XL)		
P2	SPS4844-1	PAD
(XL)		
P2	SPS4844-2	PAD
(E, EI, EB, EH)		
(EG, EK, EF)		
(XA, PA, PE)		
P3	SPS4845-1	PAD
(XL)		
P3	SPS4845-2	PAD
(E, EI, EB, EH)		
(EG, EK, EF)		
(XA, PA, PE)		

Ref. No.	Part No.	Description
P4	SPP730	PROTECTION COVER
ACCESSORIES		
A1	SQF13150	INSTRUCTION BOOK
(E, EF, EI, EB)		
(EH, EK, XL)		
A1	SQF13151	INSTRUCTION BOOK
(XA)		
A1	SQF13152	INSTRUCTION BOOK
(EG)		
A1	SQF13153	INSTRUCTION BOOK
(PA, PE)		
A2 ⚠	SFDAC05E03	POWER CORD
(E, EF, EI, EB)		
(EH, EG)		
A3 ⚠	SJP5213	PLUG
(XA)		
A4	SJP5215	PLUG
(XA)		
A5	SPPH16	POLYETHYLENE BAG
(XA)		
A6 ⚠	RJP120ZBS-H	AC PLUG ADAPTOR
(PA, PE)		

■ RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)

ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Peculiarity

ECEA	50	M	330
Type	Voltage (50V)	Pecliarity	Value (33μF)

- ● Capacity are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- ● Resistance are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Cip Resistor			
ERJ : Cip Resistor			

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : $^{+80}_{-20}$ %
ECQM : Poyester	50 : 50V	05 : 50V	J : ±5%
ECQP : Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECQ : Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N : Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)		D : ±0.5pF
ECUX : Ceramic (Chip Type)			
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R101	ERDS2TJ473	47K 1/4
R102	ERDS2TJ473	47K 1/4
R103	ERDS2TJ221	220 1/4
R104	ERDS2TJ221	220 1/4
R105	ERDS2TJ220	22 1/4
R106	ERDS2TJ220	22 1/4
R107	ERD25FJ272	2.7K 1/4
R108	ERD25FJ272	2.7K 1/4
R109	ERD25FJ272	2.7K 1/4
R110	ERD25FJ272	2.7K 1/4
R111	ERDS2TJ101	100 1/4
R112	ERDS2TJ101	100 1/4
R113	ERD25FJ272	2.7K 1/4
R114	ERD25FJ272	2.7K 1/4
R115	ERDS2TJ121	120 1/4
R116	ERDS2TJ121	120 1/4
R117	ERDS2TJ8R2	8.2 1/4
R118	ERDS2TJ8R2	8.2 1/4
R119	ER0S2TKG6802	68K 1/4
R120	ER0S2TKG6802	68K 1/4
R121	ER0S2TKF5231	5.23K 1/4
R122	ER0S2TKF5231	5.23K 1/4
R123	ERDS2TJ561	560 1/4
R124	ERDS2TJ561	560 1/4
R125	ERDS2TJ121	120 1/4
R126	ERDS2TJ121	120 1/4
R127	ERDS2TJ101	100 1/4
R128	ERDS2TJ101	100 1/4
R129	ERDS2TJ331	330 1/4
R130	ERDS2TJ331	330 1/4
R131	ERDS2TJ102	1K 1/4
R132	ERDS2TJ102	1K 1/4
R133	ERDS2TJ332	3.3K 1/4
R134	ERDS2TJ332	3.3K 1/4
R141	ERDS2TJ224	220K 1/4
R142	ERDS2TJ224	220K 1/4
R151	ERDS2TJ222	2.2K 1/4
(EI, EG)		
R152	ERDS2TJ222	2.2K 1/4
(EI, EG)		
R153	ERDS2TJ222	2.2K 1/4
(EI, EG)		
R154	ERDS2TJ222	2.2K 1/4
(EI, EG)		
R155	ERDS2TJ471	470 1/4
(EI, EG)		
R156	ERDS2TJ471	470 1/4
(EI, EG)		
R157	ERDS2TJ471	470 1/4
(EI, EG)		
R158	ERDS2TJ471	470 1/4
(EI, EG)		
R159	ERDS2TJ471	470 1/4
(EI, EG)		
R160	ERDS2TJ471	470 1/4
(EI, EG)		
R161	ERDS2TJ471	470 1/4
(EI, EG)		
R162	ERDS2TJ471	470 1/4
(EI, EG)		
R163	ERDS2TJ471	470 1/4
(EI, EG)		
R164	ERDS2TJ471	470 1/4
(EI, EG)		
R165	ERDS2TJ471	470 1/4
(EI, EG)		
R166	ERDS2TJ471	470 1/4
(EI, EG)		
R167	ERDS2TJ471	470 1/4
(EI, EG)		
R168	ERDS2TJ471	470 1/4
(EI, EG)		
R201	ERDS2TJ102	1K 1/4
R202	ERDS2TJ102	1K 1/4
R203	ERDS2TJ223	22K 1/4
R204	ERDS2TJ223	22K 1/4
R205	ERDS2TJ332	3.3K 1/4
R206	ERDS2TJ332	3.3K 1/4
R207	ERD25FJ561	560 1/4
R208	ERD25FJ561	560 1/4
R209	ERDS2TJ223	22K 1/4
R210	ERDS2TJ223	22K 1/4
R211	ERDS2TJ183	18K 1/4
R212	ERDS2TJ183	18K 1/4
R213	ERDS2TJ334	330K 1/4
R215	ERD25FJ472	4.7K 1/4
R216	ERD25FJ472	4.7K 1/4
R217	ERD25TJ124	120K 1/4
R218	ERD25TJ124	120K 1/4
R223	ERDS2TJ103	10K 1/4
R224	ERDS2TJ103	10K 1/4
R225	ERDS2TJ103	10K 1/4
R249	ERD25TJ473	47K 1/4
R250	ERD25TJ473	47K 1/4
R251	ERD25FJ221	220 1/4
R252	ERD25FJ221	220 1/4
R253	ERDS2TJ334	330K 1/4
R254	ERDS2TJ334	330K 1/4
R255	ERDS2TJ101	100 1/4
R256	ERDS2TJ101	100 1/4
R257	ERDS2TJ331	330 1/4
R258	ERDS2TJ331	330 1/4
R259	ERDS2TJ102	1K 1/4
R260	ERDS2TJ102	1K 1/4
R261	ERDS2TJ332	3.3K 1/4
R262	ERDS2TJ332	3.3K 1/4
R263	ERD25TJ473	47K 1/4
R264	ERD25TJ473	47K 1/4
R265	ERD25TJ473	47K 1/4
R266	ERD25TJ473	47K 1/4
R271	ERDS2TJ471	470 1/4
(EI, EG)		
R272	ERDS2TJ471	470 1/4
(EI, EG)		
R301	ERDS2TJ101	100 1/4
R302	ERDS2TJ101	100 1/4
R303	ERDS2TJ473	47K 1/4
R304	ERDS2TJ473	47K 1/4
R305	ERDS2TJ472	4.7K 1/4
R306	ERDS2TJ472	4.7K 1/4
R307	ERDS2TJ472	4.7K 1/4
R308	ERDS2TJ472	4.7K 1/4
R309	ERDS2TJ472	4.7K 1/4
R310	ERDS2TJ472	4.7K 1/4
R311	ERDS2TJ221	220 1/4
R312	ERDS2TJ221	220 1/4
R313	ERD25FJ821	820 1/4
R314	ERD25FJ821	820 1/4
R315	ERD25FJ472	4.7K 1/4
R316	ERD25FJ472	4.7K 1/4
R317	ERD25FJ392	3.9K 1/4
R318	ERD25FJ392	3.9K 1/4
R319	ERDS2TJ223	22K 1/4
R320	ERDS2TJ223	22K 1/4
R321	ERDS2TJ102	1K 1/4
R322	ERDS2TJ102	1K 1/4
R323	ERDS2TJ562	5.6K 1/4
R324	ERDS2TJ562	5.6K 1/4
R329	ERDS2TJ223	22K 1/4
R330	ERDS2TJ223	22K 1/4
R331	ERDS2TJ102	1K 1/4
R332	ERDS2TJ153	15K 1/4
R333	ERDS2TJ823	82K 1/4
R334	ERDS2TJ153	15K 1/4
R335	ERDS2TJ102	1K 1/4
R336	ERDS2TJ102	1K 1/4
R337	ERDS2TJ224	220K 1/4
R338	ERDS2TJ224	220K 1/4
R339	ERDS2TJ223	22K 1/4
R340	ERDS2TJ223	22K 1/4
R401	ERD25FJ331	330 1/4
R402	ERD25FJ331	330 1/4
R403	ERD25TJ124	120K 1/4
R404	ERD25TJ124	120K 1/4
R405	ERD25TJ124	120K 1/4
R406	ERD25TJ124	120K 1/4
R409	ERD25FJ392	3.9K 1/4
R410	ERD25FJ392	3.9K 1/4
R417	ERD25FJ101	100 1/4
R418	ERD25FJ101	100 1/4
R419	ERDS2TJ124	120K 1/4
R420	ERD25FJ101	100 1/4
R421	ERDS2TJ153	15K 1/4
R422	ERDS2TJ153	15K 1/4
R425	ERD25FJ101	100 1/4
R426	ERD25FJ101	100 1/4
R427	ERD25FJ101	100 1/4
R428	ERD25FJ101	100 1/4
R429	ERDS2TJ393	39K 1/4
R430	ERDS2TJ393	39K 1/4
R431	ERDS2TJ332	3.3K 1/4
R432	ERDS2TJ332	3.3K 1/4
R433	ERDS2TJ102	1K 1/4
R434	ERDS2TJ102	1K 1/4
R435	ERDS2TJ223	22K 1/4
R436	ERDS2TJ223	22K 1/4
R437	ERDS2TJ223	22K 1/4
R438	ERDS2TJ223	22K 1/4
R439	ERD25FJ101	100 1/4
R440	ERD25FJ101	100 1/4
R441	ERD25FJ101	100 1/4
R442	ERD25FJ101	100 1/4
R443	ERD25FJ2R2	2.2 1/4
R444	ERD25FJ2R2	2.2 1/4
R445	ERD25FJ2R2	2.2 1/4
R446	ERD25FJ2R2	2.2 1/4
R447	ERD25FJ561	560 1/4
R448	ERD25FJ561	560 1/4
R451	ERDS2TJ333	33K 1/4
R453	ERDS2TJ333	33K 1/4
R467	ERDS2TJ102	1K 1/4
R468	ERDS2TJ102	1K 1/4
R469	ERDS2TJ153	15K 1/4
R470	ERDS2TJ153	15K 1/4
R501	ERDS2TJ471	470 1/4
R502	ERDS2TJ471	470 1/4
R503	ERDS2TJ122	1.2K 1/4
R504	ERDS2TJ122	1.2K 1/4
R505	ERDS2TJ121	120 1/4
R506	ERDS2TJ121	120 1/4
R507	ERDS2TJ121	120 1/4
R508	ERDS2TJ121	120 1/4
R509	ERD25FJ101	100 1/4
R510	ERD25FJ101	100 1/4
R511	ERD25FJ101	100 1/4
R512	ERD25FJ101	100 1/4
R513	ERDS2TJ104	100K 1/4
R514	ERDS2TJ104	100K 1/4
R515	ERD25FJ332	3.3K 1/4
R516	ERD25FJ332	3.3K 1/4
R517	ERD25FJ1R0	1 1/4
R518	ERD25FJ1R0	1 1/4
R519	ERD25FJ1R0	1 1/4
R520	ERD25FJ1R0	1 1/4
R523	ERD25FJ101	100 1/4
R524	ERD25FJ101	100 1/4
R525	ERD25FJ101	100 1/4
R526	ERD25FJ101	100 1/4
R553	ERDS2TJ332	3.3K 1/4
R554	ERDS2TJ332	3.3K 1/4
R555	ERDS2TJ122	1.2K 1/4
R556	ERDS2TJ122	1.2K 1/4
R557	ERD25FJ331	330 1/4
R558	ERD25FJ331	330 1/4
R559	ERD25FJ2R2	2.2 1/4
R560	ERD25FJ2R2	2.2 1/4
R563	ERD25FJ2R2	2.2 1/4
R564	ERD25FJ2R2	2.2 1/4
R567	ERF2AKR10	0.1 2

Ref. No.	Part No.	Value.
R568	ERF2AKR10	0.1 2
R569	ERF2AKR10	0.1 2
R570	ERF2AKR10	0.1 2
R571	ERDS1FJ100	10 1/2
R572	ERDS1FJ100	10 1/2
R573	ERD25FJ1R0	1 1/4
R574	ERD25FJ1R0	1 1/4
R575	ERX1ANJ100	10 1
R576	ERX1ANJ100	10 1
R577	ERG2SJ331	330 2
R578	ERG2SJ331	330 2
R601	ERDS2TJ153	15K 1/4
R602	ERDS2TJ153	15K 1/4
R603	ERD25FJ271	270 1/4
R604	ERD25FJ271	270 1/4
R605	ERD25FJ472	4.7K 1/4
R606	ERD25FJ472	4.7K 1/4
R607	ERDS2TJ473	47K 1/4
R608	ERDS2TJ563	56K 1/4
R609	ERDS2TJ153	15K 1/4
R611	ERDS2TJ102	1K 1/4
R612	ERD25FJ121	120 1/4
R613	ERG1ANJ561	560 1
R614	ERG1ANJ681	680 1
R619	ERG2ANJ221	220 2
(EK, XL)		
R620	ERG2ANJ221	220 2
(EK, XL)		
R621	ERD2FCG560	56 1/4
(EK, XL)		
R622	ERD2FCG560	56 1/4
(EK, XL)		
R624	ERDS1FJ682	6.8K 1/2
R625	ERDS2TJ334	330K 1/4
R626	ERDS2TJ473	47K 1/4
R702	ERDS2TJ682	6.8K 1/4
R703	ERDS2TJ472	4.7K 1/4
R704	ERDS2TJ472	4.7K 1/4
R705	ERDS2TJ472	4.7K 1/4
R706	ERDS2TJ473	47K 1/4
R707	ERDS2TJ682	6.8K 1/4
R708	ERDS2TJ101	100 1/4
R709	ERDS2TJ221	220 1/4
R711	ERDS2TJ221	220 1/4
R751	ERDS2TJ332	3.3K 1/4
R752	ERDS2TJ103	10K 1/4
R753	ERDS2TJ823	82K 1/4
R754	ERDS2TJ823	82K 1/4
R755	ERDS1FJ151	150 1/2
R756	ERDS2TJ121	120 1/4
R758	ERDS2TJ391	390 1/4
R760	ERDS2TJ561	560 1/4
R801	ERDS2TJ750	75 1/4
R807	ERDS2TJ393	39K 1/4
R808	ERDS2TJ182	1.8K 1/4
R810	ERDS2TJ561	560 1/4
R812	ERDS2TJ101	100 1/4
R818	ERDS2TJ473	47K 1/4
R820	ERDS2TJ473	47K 1/4
R821	ERDS2TJ102	1K 1/4
R822	ERDS2TJ824	820K 1/4
R823	ERDS2TJ151	150 1/4
R824	ERDS2TJ123	12K 1/4
R825	ERDS2TJ223	22K 1/4
R826	ERDS2TJ473	47K 1/4
R829	ERD25FJ391	390 1/4
R830	ERD25FJ391	390 1/4
R831	ERDS2TJ561	560 1/4
R832	ERDS2TJ561	560 1/4
R833	ERDS2TJ561	560 1/4
R834	ERDS2TJ101	100 1/4
R835	ERDS2TJ561	560 1/4
R836	ERDS2TJ561	560 1/4
R837	ERDS2TJ101	100 1/4
R838	ERDS2TJ561	560 1/4
R839	ERDS2TJ561	560 1/4
R840	ERDS2TJ561	560 1/4
R841	ERDS2TJ561	560 1/4
R842	ERDS2TJ561	560 1/4
R843	ERDS2TJ561	560 1/4
R844	ERDS2TJ561	560 1/4
R845	ERDS2TJ561	560 1/4
R846	ERDS2TJ561	560 1/4
R847	ERDS2TJ561	560 1/4
R849	ERDS2TJ332	3.3K 1/4
R851	ERD25FJ392	3.9K 1/4
R852	ERD25FJ392	3.9K 1/4
R853	ERD25FJ392	3.9K 1/4
R854	ERD25FJ392	3.9K 1/4
R855	ERD25FJ272	2.7K 1/4
R856	ERD25FJ272	2.7K 1/4
R857	ERDS2TJ392	3.9K 1/4
R858	ERDS2TJ392	3.9K 1/4
R859	ERD25FJ472	4.7K 1/4
R860	ERD25FJ472	4.7K 1/4
R861	ERD25FJ182	1.8K 1/4
R862	ERD25FJ182	1.8K 1/4
R863	ERD25FJ182	1.8K 1/4
R864	ERD25FJ182	1.8K 1/4
R865	ERD25FJ392	3.9K 1/4
R866	ERD25FJ392	3.9K 1/4
R867	ERDS2TJ333	33K 1/4
R868	ERDS2TJ333	33K 1/4
R869	ERDS2TJ824	820K 1/4
R870	ERDS2TJ824	820K 1/4
R871	ERD25FJ152	1.5K 1/4
R872	ERD25FJ152	1.5K 1/4
R873	ERD25FJ182	1.8K 1/4
R874	ERD25FJ182	1.8K 1/4
R875	ERD25FJ821	820 1/4
R876	ERD25FJ821	820 1/4
R877	ERD25FJ182	1.8K 1/4
R878	ERD25FJ182	1.8K 1/4
R879	ERDS2TJ473	47K 1/4
R880	ERDS2TJ473	47K 1/4
R881	ERD25FJ821	820 1/4
R882	ERD25FJ821	820 1/4
R883	ERDS2TJ123	12K 1/4
R884	ERDS2TJ123	12K 1/4
R885	ERDS2TJ332	3.3K 1/4
R886	ERDS2TJ332	3.3K 1/4
R889	ERD25FJ182	1.8K 1/4
R890	ERD25FJ182	1.8K 1/4
R891	ERD25FJ182	1.8K 1/4
R892	ERD25FJ182	1.8K 1/4
R901	ERX2ANJ270	27 2
R902	ERD25FJ470	47 1/4
R909	ERDS2TJ102	1K 1/4
R910	ERDS2TJ102	1K 1/4
R911	ERDS2TJ272	2.7K 1/4
R912	ERDS2TJ272	2.7K 1/4
R914	ERDS2TJ272	2.7K 1/4
R915	ERDS2TJ224	220K 1/4
R916	ERDS2TJ224	220K 1/4
R917	ERDS2TJ102	1K 1/4
R918	ERDS2TJ102	1K 1/4
R919	ERDS2TJ224	220K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKWNS103ZVS	0.01
(E, EF, EI, EB)		
(EH, EG)		
C101	ECKD1H103PF	0.01 50
C102	ECKD1H103PF	0.01 50
C103	ECCD1H820K	82P 50
C104	ECCD1H820K	82P 50
C105	ECKD1H222KB	0.0022 50
C106	ECKD1H222KB	0.0022 50
C107	ECEA0JPS332E	3300 6.3
C108	ECEA0JPS332E	3300 6.3
C109	ECQM1H473JZ	0.047 50
C110	ECQM1H473JZ	0.047 50
C111	ECQB1H103JZ	0.01 50
C112	ECQB1H103JZ	0.01 50
C113	ECQM1H392JZ	0.0039 50
C114	ECQM1H392JZ	0.0039 50
C115	ECEA1EPN3R3	3.3 25
C116	ECEA1EPN3R3	3.3 25
C117	ECEA1EK3R3	3.3 25
C118	ECEA1EK3R3	3.3 25
C119	ECQM1H472JZ	0.0047 50
C120	ECQM1H472JZ	0.0047 50
C151	ECCD1H820K	82P 50
(EG, EI)		
C152	ECCD1H820K	82P 50
(EG, EI)		
C153	ECCD1H330K	33P 50
(EG, EI)		
C154	ECCD1H330K	33P 50
(EG, EI)		
C155	ECCD1H100KC	10P 50
(EG, EI)		
C156	ECCD1H100KC	10P 50
(EG, EI)		
C157	ECCD1H181K	180P 50
(EG, EI)		
C158	ECCD1H181K	180F 50
(EG, EI)		
C159	ECCD1H181K	180P 50
(EG, EI)		
C160	ECCD1H181K	180P 50
(EG, EI)		
C161	ECCD1H181K	180P 50
(EG, EI)		
C162	ECCD1H181K	180P 50
(EG, EI)		
C163	ECCD1H181K	180P 50
(EG, EI)		
C164	ECCD1H181K	180P 50
(EG, EI)		
C165	ECCD1H181K	180P 50
(EG, EI)		
C166	ECCD1H181K	180P 50
(EG, EI)		
C167	ECCD1H181K	180P 50
(EG, EI)		
C167	ECCD1H181K	180P 50
C168	ECCD1H181K	180P 50
(EG, EI)		
C201	ECEA1HK010	1 50
C202	ECEA1HK010	1 50
C203	ECQV1H124JZ	0.12 50
C204	ECQV1H124JZ	0.12 50
C205	ECEA1HKR22	0.22 50
C251	ECCD1H101K	100P 50
C252	ECCD1H101K	100P 50
C253	ECEA1CPN470	47 16
C254	ECEA1CPN470	47 16
C271	ECCD1H181K	180P 50
C272	ECCD1H181K	180P 50
C301	ECCD1H330K	33P 50
C302	ECCD1H330K	33P 50
C303	ECCD1H820K	82P 50
C304	ECCD1H820K	82P 50
C305	ECKD1H222KB	0.0022 50
C306	ECKD1H222KB	0.0022 50
C307	ECEA1HPK2R2	2.2 50
C308	ECEA1HPK2R2	2.2 50
C309	ECCD1H390K	39P 50
C310	ECCD1H390K	39P 50
C311	ECEA1CPN470	47 16
C312	ECEA1CPN470	47 16
C313	ECQV1H823JZ	0.082 50
C314	ECQV1H823JZ	0.082 50
C315	ECQB1H153JZ	0.015 50
C316	ECQB1H153JZ	0.015 50
C317	ECQB1H183JZ	0.018 50
C318	ECQB1H183JZ	0.018 50
C319	ECQB1H182JZ	0.0018 50
C320	ECQB1H182JZ	0.0018 50
C323	ECEA1EK100	10 25

Ref. No.	Part No.	Value.
C324	ECEA1EK100	10 25
C325	ECEA1EK100	10 25
C327	ECEA1EK3R3	3.3 25
C328	ECEA1EK3R3	3.3 25
C329	ECKD1H103PF	0.01 50
C330	ECKD1H103PF	0.01 50
C331	ECCD1H101K	100P 50
C332	ECCD1H101K	100P 50
C333	ECKD1H821KB	820P 50
C401	ECCD1H151K	150P 50
C402	ECCD1H151K	150P 50
C403	ECCD2H070D	7P 500
C404	ECCD2H070D	7P 500
C405	ECCD2H560K	56P 500
C406	ECCD2H560K	56P 500
C407	ECCD2H560K	56P 500
C408	ECCD2H560K	56P 500
C409	ECKD1H103PF	0.01 50
C410	ECKD1H103PF	0.01 50
C411	ECEA1HK010	1 50
C412	ECEA1HK010	1 50
C413	ECEA1HK010	1 50
C414	ECEA1HK010	1 50
C415	ECEA0JPS470	47 6.3
C416	ECEA0JPS470	47 6.3
C417	ECEA1HPS2R2	2.2 50
C418	ECEA1HPS2R2	2.2 50
C423	ECCD1H181K	180P 50
C424	ECCD1H181K	180P 50
C451	ECEA1EK100	10 25
C453	ECEA1EK100	10 25
C455	ECEA1EK100	10 25
C457	ECEA1EK100	10 25
C459	ECEA2AU010	1 100
C501	ECQM1H822JZ	0.0082 50
C502	ECQM1H822JZ	0.0082 50
C503	ECKD1H102KB	0.001 50
C504	ECKD1H102KB	0.001 50
C505	ECKD1H103PF	0.01 50
C506	ECKD1H103PF	0.01 50
C507	ECKD1H103PF	0.01 50
C508	ECKD1H103PF	0.01 50
C509	ECEA0JPS101	100 6.3
C510	ECEA0JPS101	100 6.3
C511	ECEA0JPS101	100 6.3
C512	ECEA0JPS101	100 6.3
C513	ECKD1H103PF	0.01 50
C514	ECKD1H103PF	0.01 50
C515	ECKD1H103PF	0.01 50
C516	ECKD1H103PF	0.01 50
C551	ECKT2H181KB	180P 500
C552	ECKT2H181KB	180P 500
C553	ECKT2H181KB	180P 500
C554	ECKT2H181KB	180P 500
C555	ECKD1H103PF	0.01 50
C556	ECKD1H103PF	0.01 50
C557 (EK, XL)	ECQM1H104JZP	0.1 50
C557 (E, EF, EI, EB) (EH, EG, XA) (PA, PE)	ECQM1H473JZ	0.047 50
C558 (EK, XL)	ECQM1H104JZP	0.1 50
C558 (E, EF, EI, EB) (EH, EG, XA) (PA, PE)	ECQM1H473JZ	0.047 50
C559 (EG, EI)	ECKD1H821KB	820P 50
C560 (EG, EI)	ECKD1H821KB	820P 50
C561 (EG, EI)	ECKD1H821KB	820P 50
C562 (EG, EI)	ECKD1H821KB	820P 50
C563 (EG, EI)	ECQM1H103JZ	0.01 50
C564 (EG, EI)	ECQM1H103JZ	0.01 50
C565 (EG, EI)	ECQM1H103JZ	0.01 50
C566 (EG, EI)	ECQM1H103JZ	0.01 50
C567 (EK, XL)	ECQM1H473JZ	0.047 50
C568 (EK, XL)	ECQM1H473JZ	0.047 50
C601	ECEA0JS331	330 6.3
C602	ECEA0JK470	47 6.3
C603	ECEA1EK4R7	4.7 25
C604	ECKD1H223PF	0.022 50
C606	ECEA1CU222	2200 16
C607 ⚠ (E, EF, EI, EB) (EH, EG, XA) (PA, PE)	ECKD2H103PE	0.01 500
C607 (EG, EI)	ECQE2104KS	0.1 250
C609	ECET71V123XM	12000 71
C610	ECET71V123XM	12000 71
C617	ECEA1EK3R3	3.3 25
C618	ECEA1EK100	10 25
C619	ECEA2APS010	1 100
C620	ECEA2APS010	1 100
C621	ECKD1H333PF	0.033 50
C623	ECKD1H333PF	0.033 50
C681	ECEA1CPU472E	4700 16
C682	ECEA1CPU472E	4700 16
C701	ECEA0JU222	2200 6.3
C702	ECKD1H221KB	220P 50
C703	ECKD1H221KB	220P 50
C704	ECEA1EK100	10 25
C705	ECKD1H103PF	0.01 50
C706	ECEA0JU101	100 6.3
C708	ECKD1H103PF	0.01 50
C802	ECFR1E104ZF	0.1 25
C804	ECFR1E104ZF	0.1 25
C806	ECFR1E104ZF	0.1 25
C808	ECEA0JPU101	100 6.3
C809	ECKD1H103PF	0.01 50
C810	ECFR1E104ZF	0.1 25
C812	ECFR1E104ZF	0.1 25
C813	ECEA0JPU101	100 6.3
C814	ECCD1H100KC	10P 50
C815	ECCD1H100KC	10P 50
C816	ECQM1H103JZ	0.01 50
C817	ECFR1E104ZF	0.1 25
C818	ECEA0JPU101	100 6.3
C819	ECEA1HK010	1 50
C820	ECEA1CKS100	10 16
C821	ECFR1E104ZF	0.1 25
C822	ECFR1E104ZF	0.1 25
C823	ECKD1H103PF	0.01 50
C824	ECFR1E104ZF	0.1 25
C825	ECFR1E104ZF	0.1 25
C826	ECFR1E104ZF	0.1 25
C827	ECFR1E104ZF	0.1 25
C828	ECEA0JPU101	100 6.3
C833	ECFR1E104ZF	0.1 25
C841	ECFR1E104ZF	0.1 25
C853	ECQP2A103JSP	0.01 100
C854	ECQP2A103JSP	0.01 100
C857	ECQP1822FZ	0.0082 100
C858	ECQP1822FZ	0.0082 100
C859	ECQP1102JZ	0.001 100
C860	ECQP1102JZ	0.001 100
C861	ECEA1CPN470E	47 16
C862	ECEA1CPN470E	47 16
C863	ECQP1392JZ	0.0039 100
C864	ECQP1392JZ	0.0039 100
C865	ECQP2A271JSP	270P 100
C866	ECQP2A271JSP	270P 100
C867	ECQP2A271JSP	270P 100
C868	ECQP2A271JSP	270P 100
C869	ECEA0JPN221E	220 6.3
C870	ECEA0JPN221E	220 6.3
C901	ECEA0JPU101	100 6.3
C902	ECEA0JPU101	100 6.3
C903	ECEA0JPU101	100 6.3
C904	ECEA0JPU101	100 6.3
C905	ECEA1CKS100	10 16
C906	ECEA1CKS100	10 16
C911	ECEA1APS101E	100 10
C912	ECEA1APS101E	100 10
C913	ECEA1APS101E	100 10
C914	ECEA1APS101E	100 10
C915	ECEA1APS101E	100 10
C916	ECEA1APS101E	100 10
C917	ECEA1APS101E	100 10
C918	ECEA1APS101E	100 10
C919	ECEA0JPS101	100 6.3
C920	ECEA0JPS101	100 6.3
C921	ECEA0JPS101	100 6.3
C922	ECEA0JPS101	100 6.3

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